Cold Storage Envelope Specification

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February 2026

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Information contained herein describes minimum requirements pertaining to cold storage/freezer facilities by which a Versico Roofing and Vapor Seal Warranty can be issued. Due to unique nature of this type of facility, contractors are encouraged to submit project specifications and details for review to ensure an uninterrupted and continuous vapor seal is achieved and the specified warranty prerequisites have been met.

PART I - GENERAL

Refrigerated facilities are any buildings or sections of a building that achieve controlled storage conditions using refrigeration. Two basic storage facilities are **coolers** that protect commodities at temperatures usually above 32° F and **low-temperature rooms** (freezers) operating under 32° F to prevent spoilage or to maintain or extend product life.

1.01 SCOPE OF WORK

This specification outlines design, application, and products utilized in cold storage and freezer facilities to achieve an uninterrupted or continuous vapor seal and obtain the applicable Versico Roofing and Vapor Seal Warranty. The cold storage/freezer envelope system consists of:

A. **Adhered, Mechanically Fastened, or Ballasted roofing assemblies** that incorporate EPDM, TPO, PVC, KEE HP or VersiFleece membrane. All components including insulation, adhesives, edging, and associated vapor seal accessories are available from Versico for Total System Warranty coverage.

Refer to Paragraph 1.02, Design Options, for specific information.

1.02 DESIGN OPTIONS

A. Roofing Assemblies

Various Versico roofing assemblies are available for use on cold storage or freezer facilities. The specifier or the cold storage contractor may select an option perfectly suited for the project conditions, regional requirements, and structural load capacity. VersiGard black EPDM, VersiGard White EPDM, VersiWeld TPO, VersiFlex PVC and VersiFlex KEE HP membranes may be incorporated depending on preference. Ballasted EPDM assemblies are also available for projects where structural load can accommodate such an assembly.

Insulation in all assemblies, except Ballasted Assemblies, may be mechanically fastened, attached with Flexible DASH Adhesive.

1. VersiFleece Adhered Assemblies

a. **EPDM – VersiFleece VersiGard/VersiGard White EPDM Adhered Roofing System** incorporates VersiGard (black) or VersiGard White (white-on-black) non-reinforced EPDM membrane laminated to a 55-mil thick non-woven polyester fleece-backing resulting in a total finished sheet thickness of 100-mil (black membrane only) or 115-mil (both black or white). The membrane is fully adhered to an acceptable insulation with a spray applied, two component, low rise Flexible DASH Adhesive. Adjoining sheets of membrane are spliced together using 3" or 6" wide QA Seam Tape and Primer or factory-applied QA Seam Tape (VersiGard QAT) and Primer.

b. **TPO – VersiFleece VersiWeld TPO Adhered Roofing System** incorporates scrim-reinforced, white, fray or tan VersiWeld Thermoplastic Polyolefin (TPO) membrane laminated to a 55-mil thick non-woven polyester fleece-backing. The membrane is fully adhered to an acceptable insulation

with a spray-applied, two-component, low-rise Flexible DASH Adhesive. Adjoining sheets of VersiWeld membrane are overlapped and joined together with a minimum 1-1/2" wide hot air weld.

c. **PVC – VersiFleece VersiFlex PVC Adhered Roofing System** incorporates polyester reinforced white, tan, gray, light gray or slate gray VersiFlex PVC membrane laminated to a 55-mil thick non-woven polyester fleece backing. The membrane is fully adhered to an acceptable insulation with a spray-applied, two-component, low-rise Flexible DASH Adhesive. Adjoining sheets of VersiWeld membrane are overlapped and joined together with a minimum 1-1/2" wide hot air weld.

d. **KEE HP – VersiFleece KEE HP PVC Adhered Roofing System** incorporates polyester reinforced white, tan, gray, light gray or slate gray VersiFlex KEE HP PVC membrane laminated to a 55-mil thick non-woven polyester fleece backing. The membrane is fully adhered to an acceptable insulation with a spray-applied, two-component, low-rise Flexible DASH Adhesive. Adjoining sheets of VersiWeld membrane are overlapped and joined together with a minimum 1-1/2" wide hot air weld.

e. For specific installation requirements pertaining to VersiFleece Adhered Membrane Assemblies, refer to the applicable VersiFleece specification.

2. **Conventional Adhered Assemblies**

a. **EPDM – VersiGard Adhered Roofing System** incorporates VersiGard (black) or VersiGard White (white-on-black) 60-mil or 90-mil thick non-reinforced or VersiGard (gray) 60-mil thick non-reinforced or VersiGard Reinforced (black) 45, 60 or 75-mil thick reinforced EPDM membrane. The EPDM membrane is fully adhered to an acceptable insulation with VersiGard Bonding Adhesive. Adjoining sheets of EPDM membrane are spliced together using 3" or 6" wide QA Seam Tape and Primer or factory-applied QA Seam Tape (VersiGard QAT) and Primer.

b. **TPO – VersiWeld Adhered Roofing System** incorporates white, gray or tan 45, 60 or 80-mil thick scrim-reinforced VersiWeld Thermoplastic Polyolefin (TPO) membrane. The membrane is fully adhered to an acceptable insulation with VersiWeld Bonding Adhesive. Adjoining sheets of membrane are overlapped approximately 2" and joined together with a minimum 1-1/2" wide heat weld.

c. **PVC – VersiFlex Adhered Roofing System** incorporates white, gray, tan, light gray, or slate gray 50, 60 and 80-mil thick polyester reinforced VersiFlex PVC membrane. The membrane is fully adhered to an acceptable insulation with Low-VOC PVC Bonding Adhesive, CAV-GRIP PVC or HydroBond Water-Based Adhesive. Adjoining sheets of membrane are overlapped approximately 2" and joined together with a minimum 1-1/2" wide heat weld.

d. **KEE HP – VersiFlex Adhered Roofing System** incorporates white, gray, tan, light gray, or slate gray 50, 60 and 80-mil thick polyester reinforced VersiFlex KEE HP PVC membrane. The membrane is fully adhered to an acceptable insulation with Low-VOC PVC Bonding Adhesive CAV-GRIP PVC or HydroBond Water-Based Adhesive. Adjoining sheets of membrane are overlapped approximately 2" and joined together with a minimum 1-1/2" wide heat weld.

e. For specific installation requirements pertaining to Conventional Adhered Membrane Assemblies, refer to the applicable Adhered Roofing System specification included in the Versico technical manual.

3. **Quick-Applied (QA) Membranes - VersiGard QA EPDM / VersiWeld QA TPO**

a. **VersiGard (Black) and VersiGard White (white-on-black) QA** (Quick-Applied) **EPDM Membrane Application** incorporates 60-mil thick, non-reinforced EPDM membrane laminated to an elastomeric pressure-sensitive adhesive. The membrane is fully adhered to an acceptable insulation using the factory-applied adhesive and adjoining sheets are spliced together using 3” wide Factory-Applied QA Seam Tape (QAT) and primer.

b. **VersiWeld QA** (Quick-Applied) **TPO Membrane Application** incorporates 60-mil thick, scrim reinforced, white, VersiWeld Thermoplastic Polyolefin (TPO) membrane laminated to an elastomeric pressure-sensitive adhesive. The membrane is fully adhered to an acceptable insulation using the factory-applied adhesive and adjoining sheets are overlapped approximately 2" and joined together with a minimum 1-1/2" wide hot air weld.

c. For specific installation requirements pertaining to the Versico VersiGard, VersiGard White QA EPDM or VersiWeld QA TPO Membrane Application, refer to the VersiGard or VersiWeld Adhered Roofing System specification.

4. **Mechanically Attached Assemblies**

a. **EPDM** – **VersiGard Reinforced Mechanically Attached Roofing System** incorporates Sure-Tough (black) 45, 60 or 75-mil thick reinforced EPDM membrane or VersiGard White (white-on-black) 60-mil reinforced EPDM membrane. The reinforced membrane is mechanically attached with the appropriate Versico Fastener and 2" diameter Fastening Plates or Fastening Bars secured 6" minimum to 12" maximum on center, depending on project criteria, along the center of the membrane splice. Adjoining sheets of EPDM membrane are spliced together using 6" wide QA Seam Tape and Primer or factory-applied QA Seam Tape (VersiGard QAT) and Primer.

b. **TPO – VersiWeld Mechanically Attached Roofing System** incorporates white, tan or gray 45, 60 or 80-mil thick scrim-reinforced, VersiWeld Thermoplastic Polyolefin (TPO) membrane field sheets. The reinforced TPO membrane is mechanically attached to the roof deck with the appropriate Versico Fasteners and Fastening Plates. Adjoining sheets of VersiWeld membrane are overlapped and joined together with a minimum 1-1/2" wide heat weld.

c. **PVC – VersiFlex Mechanically Attached Roofing System** incorporates white, gray, tan, light gray, or slate gray 50, 60 and 80-mil thick polyester reinforced VersiFlex PVC membrane. The reinforced PVC membrane is mechanically attached to the roof deck with the appropriate Versico Fasteners and Fastening Plates. Adjoining sheets of VersiFlex membrane are overlapped and joined together with a minimum 1-1/2" wide heat weld.

d. For specific installation requirements pertaining to Mechanically Fastened Assemblies, refer to the applicable EPDM, TPO, or PVC Mechanically Fastened specification.

5. **Ballasted Roofing Assemblies**

Design "B" Loose Laid Ballasted Roofing System incorporates 45 or 60-mil thick VersiGard (black) non-reinforced or minimum 60-mil Sure-Tough (black) reinforced EPDM membrane. Both the EPDM membrane and an acceptable insulation are loose laid over the substrate and held in place with a minimum of 10 pounds of ballast per square foot depending upon wind load requirements. Adjoining sheets of EPDM membrane are spliced together using 3" or 6" wide QA Seam Tape and Primer or factory-applied QA Seam Tape (VersiGard QAT) and Primer.

For specific installation requirements pertaining to Ballasted Roofing Assemblies, refer to the VersiGard Design "B" Loose-Laid Ballasted Roofing System specification.

1.03 QUALITY ASSURANCE

Cold storage, more than most construction, requires correct design, quality materials, good workmanship, and close supervision. Design should ensure that proper installation can be accomplished under various adverse job site conditions. Materials must be compatible with each other. Installation must be made by careful workers directed by an experienced, well-trained superintendent. Close cooperation between the general, roofing, insulation, and other contractors increases the likelihood of a successful installation.

A. The cold storage/freezer envelope system must be installed by a Versico Authorized Contractor in compliance with shop drawings as approved by Versico. There must be no deviations made without **PRIOR WRITTEN APPROVAL** of Versico.

B. Upon completion of the installation, an inspection will be conducted by a Field Service Representative of Versico to ascertain the roofing system has been installed according to Versico's specifications and details.

C. In the United States, the U.S. Public Health Service Food and Drug Administration developed the Food Code (FDA 1997), which consists of model requirements for safeguarding public health and ensuring that food is unadulterated. The code is a guide for establishing standards for all phases of handling refrigerated foods. These standards must be recognized in the design and operation of refrigerated storage facilities.

D. Regulations of the Occupational Safety and Health Administration (OSHA), Environmental Protection Agency (EPA), the U.S. Department of Agriculture (USDA), and other standards must also be followed.

E. Incorrect design and poor installation can cause moist air leakage into the facility, resulting in frost and ice formation, energy loss and, eventually, expensive repairs.

F. A continuous and uninterrupted vapor/air seal must encapsulate the building structure to prevent warm, humid air from infiltrating the roof assembly around the perimeter and penetrations. In freezer applications the vapor barrier under the floor slab must provide a sealed transition to prevent air leakage at the insulated wall panel/floor junction.

G. Cold storage facilities can change in dimension due to settling, temperature change, and other factors; therefore, cold storage facilities should be inspected regularly to spot problems early, so that preventive maintenance can be performed in time to avert serious damage.

1.04 SUBMITTALS

A. To ensure compliance with Versico's minimum warranty requirements, the following projects should be forwarded to Versico for review prior to installation, preferably prior to bid:

1. Projects where the roofing membrane is expected to come in direct contact with petroleum-based products or other chemicals.

2. New construction freezer projects where a below slab thermal protection system is to be installed. In addition to the roofing warranty, these projects could qualify for a 5-year vapor seal warranty.

3. Projects with extended wind speed coverage that may require different enhancements than those listed as part of the applicable Versico roofing system specification.

4. Projects with unusual conditions, special warranty, or those with warranties greater than 20 years.

B. Shop drawings must be submitted to Versico by the Versico Authorized Roofing Contractor along with a completely executed Copy-A Job Approval Request for approval. Approved shop drawings are required for inspection of the roof and on projects where on-site technical assistance is requested.

Shop drawings must include:

1. Outline of roof and size
2. Deck type (for multiple deck types)
3. Location and type of all penetrations
4. Perimeter and penetration details
5. Vapor seal details at roof and floor junction (if applicable)

When field conditions necessitate modifications to the originally approved shop drawings, a copy of the shop drawing outlining all modifications must be submitted to Versico for revision and approval prior to inspection and warranty issuance.

C. **Copy-B Job Completion**

After project completion, a Copy-B Job Completion date must be submitted to Versico to schedule the necessary inspection and acceptance of the project prior to issuance of the Versico warranty.

D. **As-Built Projects** (roofing systems installed prior to project approval by Versico)

The Versico Authorized Applicator may supply Versico with an As-Built drawing for a project completed prior to Versico's approval. The As-Built drawings:

1. Must conform to Versico's most current published specifications and details applicable at the time of bid.

2. Must be submitted along with a completely executed Notice of Completion.

3. Must include the items identified in Paragraph 1.04.B above.

1.05 WARRANTY

A. Roofing System Warranty

A 10, 15, 20, 25 or 30-year Total System Warranty is available for the roofing assembly as outlined in the applicable roofing system specification contained in the Versico technical manual.

In addition to the above, special coverage against puncture or hail is also available depending on the type and thickness of membrane used. Refer to Versico published specifications or contact Versico for requirements.

B. **Vapor Seal Warranty**

1. **Projects with a non-Total System Roofing Warranty**, a **3-year Vapor Seal Warranty** covering air infiltration along the perimeter is available for an additional charge.

2. **Projects with a Total System Roofing Warranty**, a **5-year Vapor Seal Warranty** covering air infiltration along the perimeter is available at no charge for 10, 15, 20, 25 or 30-year Total Roofing System Warranties. This coverage requires the use of Versico metal and strict compliance with Versico details specifically approved for the project.

1.06 JOB CONDITIONS

A. All steel beams, columns, and large pipes that project through the insulation should be vapor-sealed and insulated with a 4-foot high wrap of insulation. The height of insulation at conduits, small pipes, and rods should be four times the regular wall insulation thickness. In both cases, the thickness of insulation on the projection should be half that on the regular wall or ceiling.

B. Coordination between trades is essential to avoid unnecessary rooftop traffic over sections of the roof and to prevent damage to the membrane.

C. Wall construction must be designed so that as few structural members as possible penetrate the insulation envelope. Insulated panels applied to the outside of the structural frame prevent conduction through the framing. Where masonry or concrete wall construction is used, structural framing must be independent of the exterior wall. The exterior wall cannot be used as a bearing wall unless a suspended insulated ceiling is used.

D. Where interior insulated partitions are required, a double column arrangement at the partition prevents structural members from penetrating the wall insulation. For satisfactory operation and long life of the insulation structure, envelope construction should be used wherever possible.

1.07 CAUTIONS AND WARNINGS

A. Safety Data Sheets (SDS) must be on location at all times during transportation, storage and application of materials. The applicator shall follow all safety regulations as recommended by OSHA and other agencies having jurisdiction.

B. Wearing slab heating under the dock area in front of the freezer doors will help eliminate moisture at the door and floor joints.

C. Electrically operated material-handling equipment is used to eliminate inherent safety hazards of combustion-type equipment. Battery-charging areas should be designed with high roofs and must be ventilated due to the potential for combustible fumes resulting from the charging activity.

D. Condensation at the envelope is usually caused by high humidity and inadequate ventilation. Poor ventilation occurs most often within a dead air space such as a ceiling plenum, hollow masonry unit, through-metal structure, or beam cavity. All closed air spaces should be eliminated, except those large enough to be ventilated adequately. Ceiling plenums, for instance, are best ventilated by mechanical vents that move air above the envelope.

E. Other considerations include the following:

1. Vapor retardants should be placed on the warm side of insulation systems. Most often the roofing membrane will serve as a vapor barrier.

2. Prefabricated, self-locking wall panels also serve as vapor barriers.

3. In new construction, when working in colder temperatures, curing of concrete floors and the use of propane heaters to accelerate dehydration will cause construction-generated moisture to be driven upward into the roofing assembly due to the lack of ventilation. In such cases, the use of a vapor retarder/barrier beneath the roofing insulation is strongly recommended to reduce the potential for condensation and the possible phenomenon of frozen blocks of insulation that may occur during temperature pull down.

F. **Temperature Pulldown**

1. Because of the low temperatures in freezer facilities, contraction of structural members in these spaces will be substantially greater than in any surrounding ambient or cooler facilities. Therefore, contraction joints must be properly designed to prevent structural damage during facility pulldown.

2. The first stage of temperature reduction should be from ambient down to 35° F at whatever rate of reduction the refrigeration system can achieve.

3. The room should then be held at that temperature until it is dry. Finishes are especially subject to damage when temperatures are lowered too rapidly. Portland cement plaster should be fully cured before the room is refrigerated.

4. If there is a possibility that the room is airtight (most likely for small rooms, 20 feet by 20 feet maximum), swinging doors should be partially open during pulldown to relieve the internal vacuum caused by the cooling of the air, or vents should be provided. Permanent air relief vents are needed for continual operation of defrosts in small rooms with only swinging doors. Both conditions of possible air heating during defrost and cooling should be considered in design of air vents and reliefs.

5. The concrete slab will contract during pulldown, causing slab/wall joints, contraction joints, and other construction joints to open. At the end of the holding period (i.e., at 35° F), any necessary caulking should be done.

6. An average time for achieving dryness is 72 hours. However, there are indicators that may be used, such as watching the rate of frost formation on the coils or measuring the rate of moisture removal by capturing the condensation during defrost.

7. After the refrigerated room is dry, the temperature can then be reduced again at whatever rate the refrigeration equipment can achieve until the operating temperature is reached. Rates of 10° F per day have been used in the past, but if care has been taken to remove all the construction moisture in the previous steps, faster rates are possible without damage.

G. To eliminate flexure of the roof structure or overhead members and simplifies maintenance, cold room meat tracking, wherever possible, should be erected and supported within the insulated structure, entirely independent of the building itself.

PART II - PRODUCTS

2.01 General

This section lists and describes products manufactured or marketed by Versico.

The components of the cold storage envelope are to be products of Versico or accepted by Versico as compatible. The installation, performance or integrity of products by others, **when selected by the specifier and accepted as compatible by Versico**, is not the responsibility of Versico and is expressly disclaimed by the Versico Warranty.

Consult the Technical Data Bulletins for the shelf life limitation, coverage rates and application procedures of each product. Refer to the manufacturer's Safety Data Sheets for applicable precautions and warnings prior to the use of any product.

2.02 Membranes

A. **VersiGard®/VersiGard WHITE, VersiGard (gray) and VersiGard Reinforced EPDM Membranes**

1. Cured non-reinforced or reinforced EPDM (Ethylene, Propylene, Diene Terpolymer) compounded elastomer.

   Non-Reinforced EPDM membrane is available in **VersiGard (black)** or **VersiGard White (white-on-black) or VersiGard (gray)**. VersiGard White membrane must be installed with the white surface facing up and is used for Fully Adhered applications.

2. **VersiGard CLEAN (black) EPDM Membrane** (mica dust has been removed during manufacturing) is available in 90-mil, 60-mil and 45-mil thicknesses up to 10' wide. Refer to applicable “Application” sections for installation procedures. Factory-Applied QA Seam Tape (3" or 6" wide) is also available.

3. Membrane is available in various sizes as outlined below.

a. **Non-Reinforced EPDM Membrane -** conforms to ASTM D4637, Type I

VersiGard (black) 45 or 60-mil thick non-reinforced EPDM membrane - maximum 50' wide, maximum 100' long (additional lengths available dependent on membrane thickness and width) and **90-mil thick non-reinforced EPDM membrane** is available maximum 10' wide, maximum 100' long.

VersiGard White (white-on-black) 60-mil thick non-reinforced EPDM membrane - maximum 10' wide, maximum 100' long.

VersiGard Gray (gray) 60-mil thick non-reinforced EPDM membrane – available in 10’ wide, maximum 100’ long.

b. **Reinforced EPDM Membrane (black) -** conforms to ASTM D4637, Type II

VersiGard Reinforced 45, 60 and 75-mil thick reinforced EPDM membrane – 4-1/2', 7', 8' (45 and 60-mil only) or 10' wide, maximum 100' long, reinforced membrane (10' wide 45-mil thick membrane is also available in lengths of 200') with polyester fabric.

VersiGard White (white-on-black) 60-mil thick reinforced EPDM membrane -available in 10’ wide, maximum 100’ long.

4. Physical Properties: Refer to the physical properties listed on the following pages.

TABLE 1

45, 60 and 90-MIL THICK NON-REINFORCED EPDM MEMBRANE STANDARD AND FIRE RETARDANT (FR)

45-mil thick VersiGard (standard) non-reinforced EPDM membrane is used only for VersiGard Design "B" Loose Laid Ballasted Roofing Systems.

60 or 90-mil thick VersiGard FR (black) or VersiGard White (white on black) and 60-mil thick VersiGard (gray) non-reinforced EPDM membrane is used primarily for Adhered Roofing Systems. Membranes can also be used for ballasted and protected membrane assemblies.

Note: Although 60-mil thick Non-Reinforced EPDM is recommended for Adhered Roofing Systems, 45-mil thick FR Non-Reinforced EPDM may be utilized, **if specified.**

VERSIGARD (Black and Gray) / VERSIGARD WHITE (White) NON-REINFORCED MEMBRANES						
Physical Property	**Test Method**	**ASTM SPEC. (Pass)**	**Typical**			
			45-mil	**60-mil**	**60-mil**	**90-mil**
			Standard	**FR**	**White & Gray**	**VersiGard FR / VersiGard White**
Tolerance on Nominal Thickness, %	ASTM D 412	±10	±10	±10	±10	±10
Weight, lb/ft² (kg/m²)			0.26 (1.3)	0.35 (1.7)	0.39 (1.9)	0.59 (2.9)**
Tensile Strength, min, psi (MPa)	ASTM D 412	1305 (9)	1600 (11)	1600 (11)	1600 (11)	1600 (11)
Elongation, Ultimate, min, %	ASTM D 412	300	480	465	540	540
Tear Resistance, min, lbf/in (kN/m)	ASTM D 624 (Die C)	150 (26.3)	200 (35.0)	200 (35.0)	200 (35.0)	200 (35.0)
Factory Seam Strength, min.	Modified ASTM D 816	Membrane Rupture	Membrane Rupture	Membrane Rupture	Membrane Rupture	Membrane Rupture
Resistance to Heat Aging* Properties after 4 weeks @ 240°F (116°C)	ASTM D 573					
Tensile Strength, min, psi (MPa)	ASTM D 412	1205 (8.3)	1500 (10.3)	1450 (10.0)	1345 (9.3)	1450 (10.0)
Elongation, Ultimate, min, %	ASTM D 412	200	225	280	280	280
Tear Resistance, min, lbf/in (kN/m)	ASTM D 624	125 (21.9)	215 (37.6)	215 (37.6)	185 (32.4)	215 (37.6)
Linear Dimensional Change, max, %	ASTM D 1204	±1.0	-0.4	-0.5	-0.2	-0.5
Ozone Resistance* Condition after exposure to 100 pphm Ozone in air for 168 hours @ 104°F (40°C) Specimen is at 50% strain	ASTM D 1149	No Cracks	No Cracks	No Cracks	No Cracks	No Cracks
Brittleness Temp., max, deg. F (deg. C)*	ASTM D 746	-49 (-45)	-49 (-45)	-49 (-45)	-67 (-55)	-49 (-45)
Resistance to Water Absorption* After 7 days immersion @ 158°F (70°C) Change in mass, max, %	ASTM D 471	+8.0, -2.0	[+2]	[+2]	[+3.3]	[+2.0]
Water Vapor Permeance* max, perm	ASTM E 96 (Proc. B or BW)	0.1	0.05	0.03	0.02	0.03
Resistance to Outdoor (Ultraviolet) Weathering* Xenon-Arc, total radiant exposure at .70 W/m² irradiance, 176°F (80° C) black panel temp.	ASTM D 4637 Conditions	No Cracks No Crazing @ 7560 kJ/m²	No Cracks No Crazing @ 41580 kJ/m²	No Cracks No Crazing @ 41580 kJ/m²	No Cracks No Crazing @ 25200 kJ/m²	No Cracks No Crazing @ 41580 kJ/m²(black) 25200 kJ/m²(white)

* Not a Quality Control Test due to the time required for the test or the complexity of the test. However, all tests are run on a statistical basis to ensure overall long-term performance of the sheeting.
** VersiGard White 90-mil Membrane Weight in lb/ft2(kg/m2) is equal to 0.60 (2.9)

TABLE 2

45, 60, or 75-MIL THICK REINFORCED EPDM MEMBRANE

The membrane is used for Adhered or Mechanically Attached Roofing Systems

Sure-Tough membranes are formulated with fire retardants to inhibit spread of flame and meets or exceeds UL Class A requirements for slopes up to 3", depending on the assembly.

VERSIGARD REINFORCED MEMBRANES					
Physical Property	**Test Method**	**ASTM SPEC. (Pass)**	**Typical**		
			45-mil	**60-mil**	**75-mil**
Tolerance on Nominal Thickness, %	ASTM D 751	±10	±10	±10	±10
Weight, lb/ft² (kg/m²)			0.27 (1.3)	0.39 (1.9)	0.48 (2.3)
Thickness Over Scrim, min. in.(mm)	ASTM D 4637 Annex	0.015 (.381)	0.016 (.406)	0.020 (.508)	0.032 (0.81)
Breaking Strength, min, lbf (N)	ASTM D 751 Grab Method	90 (400)	140 (623)	140(623)	177(787)
Elongation, Ultimate, min, %	ASTM D 751 Grab Method	250 **	480**	480**	500**
Tear Strength, min, lbf (N)	ASTM D 751 B Tongue Tear	10 (45)	70 (311)	70 (311)	70 (311)
Brittleness Temp., max. deg. F (deg. C)*	ASTM D 2137	[-49] (-45)	[-49] (-45)	[-49] (-45)	[-49] (-45)
Resistance to Heat Aging* Properties after 4 weeks @ 240°F	ASTM D 573				
Breaking Strength, min, lbf (N)	ASTM D 751	80 (355)	182 (823)	182 (823)	182 (823)
Elongation, Ultimate, min, %	ASTM D 751	200**	250**	250**	250**
Linear Dimensional Change, max, %	ASTM D 1204	±1.0	-1.0	-1.0	-1.0
Ozone Resistance* Condition after exposure to 100 pphm Ozone in air for 168 hours @ 104°F (40°C) Specimen wrapped around 3" mandrel	ASTM D 1149	No Cracks	No Cracks	No Cracks	No Cracks
Resistance to Water Absorption* After 7 days immersion @ 158°F (70°C) Change in mass, max, %	ASTM D 471	+8.0, -2.0	[+5.5**]	[+5.5**]	[+5.5**]
Factory Seam Strength, min.	Modified ASTM D 816	Membrane Rupture	Membrane Rupture	Membrane Rupture	Membrane Rupture
Resistance to Outdoor (Ultraviolet) Weathering* Xenon-Arc, total radiant exposure at .70 W/m² irradiance, 176°F (80º C) black panel temp.	ASTM D 4637 Conditions	No Cracks No Crazing @ 7560 kJ/m²	No Cracks No Crazing @ 35320 kJ/m²	No Cracks No Crazing @ 35320 kJ/m²	No Cracks No Crazing @ 35320 kJ/m²

* Not a Quality Control Test due to the time required for the test or the complexity of the test. However, all tests are run on a statistical basis to ensure overall long-term performance of the sheeting.

** Specimens to be prepared from coating rubber compound, vulcanized in a similar method to the reinforced product.

TABLE 3

60-MIL THICK REINFORCED EPDM MEMBRANE

The membrane is used for Mechanically Attached, Metal Retrofit or Adhered Roofing Systems.

VersiGard White Reinforced Membrane is formulated with non-halogenated fire retardants to inhibit spread of flame and meets or exceeds UL Class A requirements for slopes up to 2", depending on the assembly.

VERSIGARD WHITE REINFORCED MEMBRANE			
Physical Property	**Test Method**	**ASTM SPEC. (Pass)**	**Typical 60-mil**
Tolerance on Nominal Thickness, %	ASTM D 751	±10	±10
Weight, lb/ft² (kg/m²)			0.40 (2.0)
Thickness Over Scrim, min. in.(mm)	ASTM D 4637 Annex	0.015 (.381)	0.025 (.635)
Breaking Strength, min, lbf (N)	ASTM D 751 Grab Method (1)	90 (400)	225(996)
Elongation, Ultimate, min, %	ASTM D 751 Grab Method	250 **	480**
Tear Strength, min, lbf (N)	ASTM D 751 B Tongue Tear	10 (45)	70 (311)
Brittleness Temp., max. deg. F (deg. C)*	ASTM D 2137	[-49] (-45)	[-49] (-45)
Resistance to Heat Aging* Properties after 4 weeks @ 240°F	ASTM D 573		
Breaking Strength, min, lbf (N)	ASTM D 751	80 (355)	250 (1,110)
Elongation, Ultimate, min, %	ASTM D 412	200**	250**
Linear Dimensional Change, max, %	ASTM D 1204	±1.0	-1.0
Ozone Resistance* Condition after exposure to 100 pphm Ozone in air for 168 hours @ 104°F (40°C) Specimen wrapped around 3" mandrel	ASTM D 1149	No Cracks	No Cracks
Resistance to Water Absorption* After 7 days immersion @ 158°F (70°C) Change in mass, max, %	ASTM D 471	+8.0, -2.0	5.2**
Water Vapor Permeance* Max. perms	ASTM E 96 (Proc. B or BW)	0.10	0.02
Fungi Resistance	ASTM G 21	N/A	0 (No Growth)
Specular Gloss at 85ºC	ASTM D523	N/A	3
Resistance to Outdoor (Ultraviolet) Weathering* Xenon-Arc, total radiant exposure at .70 W/m² irradiance, 176°F (80º C) black panel temp.	ASTM G 155	No Cracks No Crazing @ 2,520 kJ/m² 1,000 hrs.	No Cracks No Crazing @ 25,200 kJ/m² 10,000 hrs.
At 0.35 W/m² irradiance, 80°C black panel temperature		2,000 hrs.	20,000 hrs.

* Not a Quality Control Test due to the time required for the test or the complexity of the test. However, all tests are run on a statistical basis to ensure overall long-term performance of the sheeting.

** Specimens to be prepared from coating rubber compound, vulcanized in a similar method to the reinforced product.

TABLE 4

VersiGard/VersiGard White VersiFleece Membrane

VersiGard VersiFleece 100, 115 or 145 membrane incorporates 45-, 60-, or 90-mil thick VersiGard (black) or VersiGard White non-reinforced EPDM laminated to a 55-mil non-woven polyester fleece-backing resulting in a total finished sheet thickness of 100, 115 or 145-mil. A selvage edge with 3" or 6" wide Factory-Applied QA Seam Tape is provided along the length of the membrane for splicing. The 100 and 115-mil membranes are available in widths of 5' or 10' and lengths of 40', 50' (black only) or 100' depending on the product. The 145-mil membrane is available in width of 10' and lengths of 50' or 100' depending on the specific product. Conforms to ASTM Standard D 4637-96, Type III (Fabric-Backed membrane) with the following physical properties:

Physical Property	Test Method	SPEC. (Pass)	VersiGard Typical	VersiGard White Typical
Tolerance on Nominal Thickness, %	ASTM D 751	±10	±10	±10
Thickness over Fleece, min, in. (mm) 100 mil (2.54 mm) 115 mil (2.92 mm) 145 mil (3.68 mm)	ASTM D4637 Annex	.030 (.762) .045 (1.14) .080 (2.03)	.045 (1.143) .060 (1.524) .090 (2.28)	.045(1.143) .060 (1.524) .090 (2.28)
Weight 1b/ft□ (kg/m□) 100 mil 115 mil 145 mil			0.29 (1.4) 0.38 (1.9) 0.59 (2.4)	0.33 (1.6) 0.42 (2.1) 0.63 (3.1)
Breaking Strength, min, lbf (N) 100 and 115 mil 145 mil	ASTM D751 Grab Method	90 (400)	210 (934) 250 (1,112)	210 (934) 210 (934)
Elongation, Ultimate, min, %	ASTM D 412	300 **	480 **	500 **
Tearing Strength, min, lbf (N) 100 and 115 mil 145 mil	ASTM D 751 B Tongue Tear	10 (45)	45 (200) 60 (266)	45 (200) 45 (200)
Puncture Resistance, Joules 100 mil 115 mil 145 mil	ASTM D5635		20 27.5 35	25 25 42.5
Puncture Resistance, lbf 100 mil 115 mil 145 mil	FTM 101C Method 2031		328 338 355	316 325 307
Puncture Resistance, lbf 100 mil 115 mil 145 mil	ASTM D120		18 22 28	17 19 22
Hail Resistance 100 mil 115 mil 145 mil	UL 2218 Over Iso HP Rec. Bd. Gypsum Bd.	Class 4 Rating 2" steel Ball at 20'	 Pass Pass Pass	 Pass Pass Pass
Brittleness point, max, °F (°C)	ASTM D 2137	-49 (-45)	-67 (-55)	-67 (-55)
Resistance to Heat Aging * Properties after 4 weeks @ 240°F (116°C) for VersiGard Properties after 1 week @ 240° F for VersiGard White Breaking Strength, min, lbf (N) Elongation, Ultimate, min, % Linear Dimensional Change, max, %	ASTM D 573 ASTM D 751 ASTM D 412 ASTM D 1204	 80 (355) 200 ** ±1.0	 200 (890) 225 ** -0.7	 200 (890) 250 ** -0.7
Ozone Resistance * Condition after exposure to 100 pphm Ozone in air for 168 hours @ 104°F (40°C) Specimen wrapped around 3 inch (7.5 cm) mandrel	ASTM D 1149	No Cracks	No Cracks	No Cracks
Resistance to Water Absorption * After 7 days immersion @ 158°F (70°C) Change in mass, max, %	ASTM D 471	+8, -2**	2.0 **	3.6 **
Resistance to Outdoor (Ultraviolet) Weathering * Xenon-Arc, total radiant exposure at 0.70 W/m^2 irradiance 176° F (80°C) black panel temperature	ASTM G 155	No Cracks No Crazing @ 7560 kJ/m^2	No Cracks No Crazing @ 41580 kJ/m^2	No Cracks No Crazing @ 25200 kJ/m^2

* Not a Quality Control Test due to the time required for the test or the complexity of the test. However, all tests are run on a statistical basis to ensure overall long-term performance of the sheeting

** Specimens prepared from coating rubber compound.

B. **VersiWeld (TPO) Membranes**

1. VersiWeld TPO Membrane meets or exceeds the requirements of ASTM D6878, standard specification for Thermoplastic Polyolefin Based Sheet Roofing. In addition to the physical properties listed below, refer to the VersiWeld Membrane Product Data Sheet for Cool Roof Rating Council (CRRC) and LEED™ radiative properties and dynamic puncture resistance.

2. When tested in accordance with ASTM C1549, the material has an initial reflectance of 0.79 (white) and 0.71(tan) and a 3-year aged reflectance of 0.70 (white) and 0.64 (tan). The material has also been tested for emittance in accordance with ASTM C1371. An initial emittance of 0.90 (white) and 0.86 (tan) and a 3-year aged emittance of 0.86 (white) and 0.87 (tan) were achieved.

3. The VersiWeld TPO membrane (white) meets the emittance requirements set forth by the USGBC (US Green Building Council) for their LEED (Leadership in Energy and Environmental Designs) Program. When tested in accordance with ASTM E408, an emittance of 0.90 was achieved and an SRI (solar reflectance index) of 99 was calculated using ASTM E1980.

4. VersiWeld 45 or 60-mil thick Reinforced Thermoplastic Polyolefin (TPO) membrane, VersiWeld QA (Quick-Applied) 60 or 80-mil thick Reinforced Thermoplastic Polyolefin (TPO) membrane and VersiWeld 80-mil thick Reinforced Thermoplastic Polyolefin (TPO) conforms to the following physical properties. VersiWeld QA (white, tan or gray) membrane is available in 10’ and 12’ wide by 50’ or 100’ long rolls and VersiWeld Standard / HS membrane available in field sheets in rolls 16’, 12', 10' or 8' wide by 100' long. Perimeter membrane sheets are available in widths of 6' (used with 12' and 10' wide field sheets) or 4' (used with 8' wide field sheets) by 100' long. VersiWeld Membrane is available in white, gray or tan. Special Color TPO membrane is available in 5 colors (Medium Bronze, Rock Brown, Terra Cotta, Slate Gray and Patina Green) in 60-mil field sheets in rolls 5’ or 10’ wide by 100’ long and 80-mil field sheets in 10’ wide by 100’ long. Special Color TPO is a special order product and may require a lead time.

5. Physical Properties: Refer to the physical properties listed on the following pages.

TABLE 5

VERSIWELD (TPO) MEMBRANE

PHYSICAL PROPERTY	ASTM D6878 Requirement	45-mil Std & HS	60-mil Std & HS	60-mil SAT or Spectro-Weld	80-mil EXTRA or Spectro-Weld
Tolerance on nominal thickness, % ASTM D751 test method	+15, -10	± 10	± 10	± 10	± 10
Thickness over scrim, in. (mm) ASTM D6878 optical method, average of 3 areas	0.012 min. (0.305)	0.018 typical (0.457)	0.024 typical (0.610)	0.024 typical (0.610)	0.034 typical (0.864)
Breaking strength, lbf (kN) ASTM D751 grab method	220 (976 N) min.	225 (1.0) min. 320 (1.4) typ.	250 (1.1) min. 360 (1.6) typ.	250 (1.1) min. 360 (1.6) typ.	350 (1.6) min. 425 (1.9) typ.
Elongation break of reinforcement, % ASTM D751 grab method	15 min.	15 min. 25 typ.	15 min. 25 typ.	15 min. 25 typ.	15 min. 25 typ.
Tearing strength, lbf (N) ASTM D751 proc. B 8 by 8 in.	55 (245) min.	55 (245) min. 130 (578) typ.	55 (245) min. 130 (578) typ.	55 (245) min. 130 (578) typ.	55 (245) min. 130 (578) typ.
Brittleness point, °F (°C) ASTM D2137	-40 (-40) max.	-40 (-40) max. -50 (-46) typ.	-40 (-40) max. -50 (-46) typ.	-40 (-40) max. -50 (-46) typ.	-40 (-40) max. -50 (-46) typ.
Linear dimensional change, % ASTM D1204, 6 hours at 158 °F	± 1 max.	± 1 max. -0.2 typ.	± 1 max. -0.2 typ.	± 0.5 max. -0.2 typ.	± 1 max. -0.2 typ.
Ozone resistance, no cracks 7X ASTM D1149, 100 pphm, 168 hrs	Pass	Pass	Pass	Pass	Pass
Water absorption resistance, mass % ASTM D471 top surface only 166 hours at 158 °F water	± 3.0 max.	3.0 max. 2.0 typ.	3.0 max. 2.0 typ.	4.0 max. 2.0 typ.	3.0 max. 2.0 typ.
Factory seam strength, lbf /in. (kN/m) ASTM D751 grab method	66 (290) min.	66 (290) min.	66 (290) min.	66 (290) min.	66 (290) min.
Field seam strength, lbf /in. (kN/m) ASTM D1876 tested in peel	No requirement	25 (4.4) min. 50 (8.8) typ.	25 (4.4) min. 60 (10.5) typ.	25 (4.4) min. 60 (10.5) typ.	40 (7.0) min. 70 (12.3) typ.
Water vapor permeance, Perms ASTM E96 proc. B	No requirement	0.10 max. 0.05 typ.	0.10 max. 0.05 typ.	0.10 max. 0.05 typ.	0.10 max. 0.05 typ.
Puncture resistance, lbf (kN) FTM 101C, method 2031 (see supplemental section)	No requirement	250 (1.1) min. 325 (1.4) typ.	300 (1.3) min. 350 (1.6) typ.	300 (1.3) min. 350 (1.6) typ.	400 (1.8) min. 450 (2.0) typ.
Properties after heat aging ASTM D573, 670 hrs at 240 °F					
Breaking strength, % retained	90 min.	90 min.	90 min.	90 min.	90 min.
Elongation reinf., % retained	90 min.	90 min.	90 min.	90 min.	90 min.
Tearing strength, % retained	60 min.	60 min.	60 min.	60 min.	60 min.
Weight change, %	± 1.0 max.	± 1.0 max.	± 1.0 max.	± 1.0 max.	± 1.0 max.

TABLE 6

VERSIWELD VERSIFLEECE (100-, 115- or 135-MIL THICK TPO MEMBRANE)

VersiWeld VersiFleece 100, 115 or 135 membrane incorporates 45, 60 or 80-mil thick Thermoplastic Polyolefin (TPO) membrane laminated to a 55-mil non-woven fleece backing resulting in a total finished sheet thickness of 100, 115 or 135-mils. Membrane sheets are available in rolls 12' or 6' wide by 50', 75' or 100' long. VersiWeld VersiFleece Membrane is available in white, gray or tan in the 100-, 115- and 135-mil thicknesses and conforms to the table below:

OPTION: 115-mil (white) and 135-mil (white or gray) VersiWeld VersiFleece TPO reinforced membrane is available with an optional APEEL Protective Film. APEEL Protective Film can be left in place for up to 90 days without affecting the integrity of the film, guarding the TPO membrane's surface from scuffs and dirt accumulation during installation. Durable and easy to remove, APEEL Protective Film improves aesthetics and long-term reflectivity. Available 6' and 12' widths by 100' long rolls for 115-mil membrane and 6' and 12' widths by 75' long rolls for 135-mil membranes. VersiWeld 135-mil VersiFleece APEEL TPO requires a minimum order of 200 squares and 2-3 week lead time. Also available, APEEL 6" Cover Tape, allowing 100% coverage of the TPO surface. APEEL Cover Tape rolls are 1,640 feet long.

Property	Test Method	SPEC. (min.)	VersiWeld VF (typical)
Thickness of reinforced sheet over fleece, in. (mm) tolerance is ±10	ASTM D 751	-	0.045 (1.14) – VF 100 0.060 (1.52) – VF 115 0.080 (2.03) – VF 135
Weight, lb/sq.ft.	-	-	0.27 - VF 100 0.34 - VF 115 0.44 - VF 135
Breaking Strength, min, lbf (kN)	ASTM D 751 Grab Method	220 (1)	375 (1.6) min. VF 100 450 (2) min. VF 115 500 (2.2) min. VF 135
Elongation at break of internal fabric,%	ASTM D 751	15	25 typical
Tearing Strength, min, lbf (N) 8" by 8" specimen	ASTM D 751 B Tongue Tear	55 (245)	100 (445) typical
Puncture resistance, Joules	ASTM D5635	-	20 VF 100 25 VF 115 32.5 VF 135
Puncture resistance, lbf (N)	FTM 101C Method 2031	350(1.6) min. VF 100 400 (1.8) min. VF 115 425 (1.9) min. VF 135	450 (2.0) typical VF 100 525 (2.3) typical VF 115 600 (2.6) typical VF 135
Brittleness Point, °F (°C)	ASTM D 2137	-40 (-40) min.	-50 (-46) typical
Linear Dimensional Change (shrinkage), %	ASTM D 1204	+/- 1.0 max.	-0.2 typical
Field seam strength, lbf/in. (kN/m) Seam tested in peel	ASTM D1876	25 (4.4) VF 100 25 (4.4) VF 115 40 (7.0) VF 135	50 (8.8) typical VF 100 60 (10.5) typical VF 115 70 (12.3) typical VF 135
Water vapor permeance, Perms	ASTM E 96	-	0.10 max. 0.05 typical
Resistance to microbial surface growth, rating (1 is very poor, 10 is no growth)	ASTM D 3274	-	9 – 10 typical
Ozone Resistance, 100 pphm, 168 hours	ASTM D 1149	No Cracks	No Cracks
Resistance to Water Absorption After 7 days immersion @ 158°F (70°C) Change in mass, % (one side)	ASTM D 471	+/- 3.0	0.90
Resistance to Outdoor (Ultraviolet) Weathering Xenon-Arc, total radiant exposure at 0.70 W/m^2 irradiance, 80ºC black panel temp.	ASTM G 155	No Cracks No loss of breaking or tearing strength	No Cracks No loss of breaking or tearing strength
VF 100 VF 115 VF 135			17,640 kJ/m^2 20,160 kJ/m^2 27,720 kJ/m^2

C. **VersiFlex (PVC/KEE HP) Membranes**

1. General

   a. The VersiFlex PVC membrane (white), when tested in accordance with ASTM C1549, the material has an initial reflectance of 0.86 and a 3-year aged reflectance of 0.63. The material has also been tested for emittance in accordance with ASTM C1371. An initial emittance of 0.89 and a 3-year aged emittance of 0.87 were achieved.

   b. The VersiFlex KEE HP PVC membrane (white), when tested in accordance with ASTM C1549, the material has an initial reflectance of 0.82 and a 3-year aged reflectance of 0.71. The material has also been tested for emittance in accordance with ASTM C1371. An initial emittance of 0.89 and a 3-year aged emittance of 0.84 were achieved.

   c. The VersiFlex PVC membrane (white) meets the emittance requirements set forth by the USGBC (US Green Building Council) for their LEED (Leadership in Energy and Environmental Designs) Program. When tested in accordance with ASTM E408, an emittance of 0.89 was achieved and an SRI (solar reflectance index) of 108 was calculated using ASTM E1980.

   d. The VersiFlex KEE HP PVC membrane (white) meets the emittance requirements set forth by the USGBC (US Green Building Council) for their LEED (Leadership in Energy and Environmental Designs) Program. When tested in accordance with ASTM E408, an emittance of 0.89 was achieved and an SRI (solar reflectance index) of 103 was calculated using ASTM E1980.

2. VersiFlex 50-mil, 60-mil or 80-mil thick Polyester Reinforced PVC (Polyvinyl Chloride) Membrane conforms to the following physical properties

   a. Physical properties of the membrane are enhanced by a strong, polyester fabric that is encapsulated between the PVC based top and bottom plies. The combination of the fabric and PVC plies provide VersiFlex Reinforced PVC membranes with high breaking strength, tearing strength, and puncture resistance.

   b. Field membrane sheets are packaged in rolls 81" or 120” wide. Perimeter membrane sheets are available in a width of 40.5" or 60” wide. 50-mil thick membrane is available in lengths of 100', 60-mil is available in 100' lengths and 80-mil is available in 75' lengths. VersiFlex PVC Membrane is available in white, gray, light gray, slate gray and tan. VersiFlex PVC KEE HP Membrane is available in white, gray, light gray, and tan.

   OPTION: 60-mil VersiFlex PVC or 60-mil VersiFlex KEE HP (white color only) reinforced membrane is available with an optional APEEL Protective Film. APEEL Protective Film can be left in place for up to 90 days without affecting the integrity of the film, guarding the PVC/KEE HP membrane’s surface from scuffs and dirt accumulation during installation. Durable and easy to remove, APEEL Protective Film improves aesthetics and long-term reflectivity. Available 5’ and 10’ widths by 100’ long rolls. Also available, APEEL 6” Cover Tape, allowing 100% coverage of the PVC surface.

TABLE 7

VERSIFLEX PVC MEMBRANE (50-, 60- or 80-MIL THICK PVC MEMBRANE)

VersiFlex PVC 50-mil, 60-mil or 80-mil thick **Polyester Reinforced** Membrane meets or exceeds the requirements of ASTM D4434, standard specification for Polyvinyl Chloride Base Sheet Roofing. In addition to the physical properties listed below, refer to the VersiFlex Membrane Product Data Sheet for Cool Roof Rating Council (CRRC) and LEED radiative properties as well as dynamic puncture resistance.

VersiFlex Polyester Reinforced PVC Membrane				
Physical Property	**ASTM D4434 Requirement**	**50-mil Min.**	**60-mil Min.**	**80-mil Min.**
Thickness Over Scrim, in. (mm) ASTM D4434 optical method average of 3 areas	0.016 min. (0.40)	0.022 (0.559)	0.028 (0.711)	0.038 (0.965)
Weight, lbs/ft^2 (kg/m^2)	No requirement	0.33 (1.61)	0.40 (1.95)	0.55 (2.68)
Breaking Strength (MD X CD), lbf/in (kN/m) ASTM D751 grab method	275 min. (48)	320 x 300 (56 x 53)	330 x 300 (58 x 55)	360 x 330 (63 x 58)
Elongation break of reinforcement (MD x CD), % ASTM D751 grab method	25 min.	30 x 30	30 x 30	30 x 30
Seam Strength, min. ASTMD751 grab method (% of breaking strength)	>75	PASS	PASS	PASS
Tearing Strength (MD x CD), lbf (N) ASTM D751 proc. B, 8 in. x 8 in.	90 min. (400)	100 x 120 (445 x 534)	100 x 130 (445 x 578)	100 x 132 (445 x 587)
Low Temperature Bend, ASTM D2135, no cracks 5x at -40ºC	PASS	PASS (-40ºC)	PASS (-40ºC)	PASS (-40ºC)
Linear Dimensional Change, % ASTM D1204, 6 hours at 176ºF	+/- 0.5 max.	0.4	0.4	0.4
Ozone Resistance, no cracks 7x ASTM D1149, 100pphm, 168 hrs	PASS	PASS	PASS	PASS
Water Absorption Resistance, mass % ASTM D570, 166 hours at 158ºF	+/- 3.0 max.	2.0	2.0	2.0
Field Seam Strength, lbf/in. (kN/m) ASTM D1876 tested in peel	No Requirement	25 (4.4) min. 60 (10.5) max.	25 (4.4) min. 60 (10.5) max.	25 (4.4) min. 60 (10.5) max.
Water Vapor Permeance, Perms, ASTM E96 proc. B	No Requirement	0.10 max. 0.05 typ.	0.10 max. 0.05 typ.	0.10 max. 0.05 typ.
Puncture Resistance – Federal, lbf (kN) FTM 101C, method 2031	No Requirement	280	320	380
Puncture Resistance – Dynamic, J (ft-lbf) ASTM D5635	20 (14.7)	PASS	PASS	PASS
Puncture Resistance – Static, lbf (N) ASTM D5602	33 (145)	PASS	PASS	PASS
Xenon-Arc Resistance, no cracks/crazing 10x, ASTM G155 0.35 W/m^2 at 340-nm, 63ºC B.P.T. 12,600 kJ/m^2 total radiant exposure 10,000 hours	PASS	PASS	PASS	PASS
Properties After Heat Aging, ASTM D3045, 56 days at 176ºF Breaking Strength, % retained Elongation reinf., % retained	90 min. 90 min.	90 min. 90 min.	90 min. 90 min.	90 min. 90 min.
B.P.T. is black panel temperature				

TABLE 8

VERSIFLEX VERSIFLEECE PVC (115- or 135-MIL THICK PVC MEMBRANE)

VersiFlex VersiFleece PVC Membrane incorporates 60- or 80-mil thick, fiberglass reinforced scrim, Polyvinyl Chloride (PVC) membrane laminated to a 55-mil non-woven fleece backing resulting in a total finished sheet thickness of 115-, or 135-mils. Membrane sheets are available in rolls 10' wide by 100' long for 115-mil membrane and 10' wide by 75' long for 135-mil membranes. VersiFlex VersiFleece Membrane is available in white, gray, light gray, slate gray or tan and conforms to the following:

Property	Test Method	Requirement	VersiFleece PVC 115-mil	VersiFleece PVC 135-mil
Thickness of reinforced sheet over fleece, in. (mm)	ASTM D 4434	No requirement	0.060 typ. (0.152)	0.080 typ. (0.203)
Membrane Thickness over scrim, in. (mm)	ASTM D 4434	0.016 min. (0.40)	0.027 typ. (0.686)	0.037 typ. (0.940)
Breaking Strength (MD x CD), lbf (N)	ASTM D 751	200 min. (890)	420 x 380 (73 x 66)	450 x 410 (79 x 72)
Elongation break of reinforcement (MD X CD), %	ASTM D 751	15 min.	30 x 30	30 x 30
Tearing Strength (MD x CD), lbf (N)	ASTM D 751	45 (200)	197 x 165 (876 x 734)	173 x 191 (769 x 849)
Low Temperature Bend	ASTM D 2135	No Cracks - 5x	PASS (-40º C)	PASS (-40º C)
Linear Dimensional Change, %	ASTM D 1204	± 0.5 max.	0.4 typ.	0.4 typ.
Water Absorption Resistance, mass %	ASTM D 570	± 3.0 max.	2.0	2.0
Puncture Resistance, Dynamic, J (ft-lbf)	ASTM D 5635	20 (14.7)	40 (29.5)	42.5 (31.3)
Puncture Resistance, Static, lbf (N)	ASTM D 5602	33 (145)	63.99 (284.6)	63.99 (284.6)
Federal Puncture (Max. Load in lbf)	FTM-101C	No Requirement	380	460
Xenon-Arc Resistance 12,600 kJ/m^2 total radiant exposure 10,000 hrs	ASTM G 155	No Cracks or Crazing – 10x	PASS	PASS
Properties After Heat Aging, Breaking Strength, % retained	ASTM D 3045	90 min.	90 min.	90 min.
Properties After Heat Aging, Elongation Reinf., % retained	ASTM D 3045	90 min.	90 min.	90 min.

3. VersiFlex 50-mil, 60-mil or 80-mil thick KEE HP PVC Polyester Reinforced Membrane is designed for Fully Adhered or Mechanically Fastened applications and conforms to the following physical properties.

   a. Physical properties of the membrane are enhanced by a strong, polyester fabric that is encapsulated between the KEE HP based top and bottom plies. The combination of the fabric and KEE HP plies provide VersiFlex KEE HP Polyester Reinforced membranes with high breaking strength, tearing strength, and puncture resistance.

   b. Field membrane sheets are packaged in 5' and 10' wide rolls. 50-mil thick membrane is available in lengths of 100', 60-mil is available in 100' lengths and 80-mil is available in 75' lengths. VersiFlex KEE HP Membrane is available in white, gray, light gray, slate gray and tan.

TABLE 9

VERSIFLEX KEE HP POLYESTER REINFORCED MEMBRANE				
PHYSICAL PROPERTY	**ASTM D4434 Requirement**	**50-mil**	**60-mil**	**80-mil**
Thickness Over Scrim, in. (mm) ASTM D4434 optical method average of 3 areas	0.016 min. (0.40)	0.024 (0.61)	0.029 (0.74)	0.036 (0.91)
Weight, lbs/ft^2 (kg/m^2)	No requirement	0.33 (1.61)	0.40 (1.95)	0.55 (2.68)
Breaking Strength (MD X CD), lbf/in (kN/m) ASTM D751 grab method	275 min. (48)	290 x 290 (51 x 51)	320 x 300 (56 x 52)	330 x 320 (58 x 56)
Elongation break of reinforcement (MD x CD), % ASTM D751 grab method	25 min.	30 x 30	30 x 30	30 x 30
Tearing Strength (MD x CD), lbf (N) ASTM D751 proc. B, 8 in. x 8 in.	90 min. (400)	120 x 125 (534 x 556)	120 x 125 (534 x 556)	140 x 150 (623 x 667)
Low Temperature Bend, ASTM D2135, no cracks 5x at -40°C	PASS	PASS (-46°C)	PASS (-46°C)	PASS (-46°C)
Linear Dimensional Change, % ASTM D1204, 6 hours at 176°F	+/- 0.5 max.	0.4 typ.	0.4 typ.	0.4 typ.
Ozone Resistance, no cracks 7x ASTM D1149, 100pphm, 168 hrs	PASS	PASS	PASS	PASS
Water Absorption Resistance, mass % ASTM D570, 166 hours at 158°F	+/- 3.0 max.	1.25	0.87	0.89
Puncture Resistance – Dynamic, J (ft-lbf) ASTM D5635	20 (14.7)	PASS	PASS	PASS
Puncture Resistance – Static, lbf (N) ASTM D5602	33 (145)	PASS	PASS	PASS
Xenon-Arc Resistance, no cracks/crazing 10x, ASTM G155 0.35 W/m^2 at 340-nm, 63°C B.P.T. 12,600 kJ/m^2 total radiant exposure 10,000 hours	PASS	PASS	PASS	PASS
Properties After Heat Aging, ASTM D3045, 56 days at 176°F Breaking Strength, % retained Elongation reinf., % retained	90 min. 90 min.	90 min. 90 min.	90 min. 90 min.	90 min. 90 min.
B.P.T. is black panel temperature				

4. **VersiFleece KEE HP membrane** incorporates 50-, 60- or 80-mil thick Polyester Reinforced Elvaloy KEE HP PVC membrane laminated to a 55-mil non-woven fleece backing resulting in a total finished sheet thickness of 105-, 115, or 135- mils. Membrane sheets are available in rolls 10' wide by 100' long for 105- and 115-mil and 10' wide by 75' long for 135-mil. VersiFlex VersiFleece KEE HP Membrane is available in white, gray, light gray and tan and conforms to the following:

TABLE 10

VERSIFLEECE KEE HP MEMBRANE

Property	Test Method	VersiFleece KEE HP PVC 105-mil	VersiFleece KEE HP PVC 115-mil	VersiFleece KEE HP PVC 135-mil
Thickness of reinforced sheet over fleece, in. (mm)	ASTM D 4434	0.050 min. (1.27)	0.060 typ. (1.52)	0.080 typ. (2.03)
Thickness over scrim, in. (mm)	ASTM D 4434	0.024 min. (0.61)	0.029 typ. (0.74)	0.036 typ. (0.91)
Breaking Strength (MD x CD), lbf (kN/m)	ASTM D 751	410 x 360 (72 x 63)	450 x 410 (79 x 72)	500 x 490 (87 x 86)
Elongation break of reinforcement (MD x CD), %	ASTM D 751	35 x 30	35 x 30	35 x 30
Tearing Strength (MD x CD), lbf (N)	ASTM D 751	178 x 162 (791 x 720)	147 x 174 (653 x 774)	152 x 183 (676 x 814)
Low Temperature Bend	ASTM D 2135	PASS (-40º C)	PASS (-40º C)	PASS (-40º C)
Linear Dimensional Change, %	ASTM D 1204	0.4 typ.	0.4 typ.	0.4 typ.
Water Absorption Resistance, mass %	ASTM D 570	1.25	0.87	0.89
Puncture Resistance, Dynamic, J (ft-lbf)	ASTM D 5635	PASS	PASS	PASS
Puncture Resistance, Static, lbf (N)	ASTM D 5602	63.99 (284.6)	63.99 (284.6)	63.99 (284.6)
Federal Puncture (Max. Load in lbf)	FTM-101C	332	384	482
Xenon-Arc Resistance 12,600 kJ/m^2 total radiant exposure 10,000 hrs	ASTM G 155	PASS	PASS	PASS
Properties After Heat Aging, Breaking Strength, % retained	ASTM D 3045	90 min.	90 min.	90 min.
Properties After Heat Aging, Elongation Reinf., % retained	ASTM D 3045	90 min.	90 min.	90 min.

2.03 EPDM FLASHING ACCESSORIES

A. **VersiGard Black/VersiGard White or VersiGard Gray Quick-Applied Cured Cover Strip:** A 6" or 9" wide and 100' long and 12" wide by 50' long VersiGard Black, VersiGard White or VersiGard Gray 60-mil cured EPDM membrane laminated to a nominal 30-mil cured Pressure-Sensitive TAPE. The Cured Cover Strip is ideal for flashing gravel stops, metal edging, Versico Seam Fastening Plates and for EPDM repairs.

B. **VersiGard Quick-Applied Overlayment Strip:** A nominal 40-mil black, **semi-cured** EPDM membrane laminated to a nominal 30-mil cured, Quick-Applied Tape. Available in 6" and 9" widths and 100' long rolls used to overlay seams, flash gravel stops, metal edgings and Seam Fastening Plates used for additional membrane securement.

C. **VersiGard Black / VersiGard White or VersiGard Gray Quick-Applied Uncured Flashing:** A 6" x 100' and 9" or 12" wide by 50' long, 60-mil thick VersiGard (black), VersiGard White (white) or VersiGard Gray (gray) **uncured** EPDM Flashing laminated to a 30-mil Pressure-Sensitive TAPE used in conjunction with EPDM Primer.

VersiGard/VersiGard White or VersiGard Gray uncured Pressure-Sensitive Elastoform Flashing is used to flash inside and outside corners, pipes, scuppers and field fabricated pourable sealer pockets when the use of Versico pre-fabricated flashing accessories is not feasible.

D. **VersiGard Black / VersiGard White or VersiGard Gray Quick-Applied Curb Flashing** – A 20" wide by 50' long VersiGard (cured 60-mil thick EPDM membrane with 6" wide Quick-Applied Tape along one edge to be used to flash curbs/skylights, etc.

E. **VersiGard Black / VersiGard White or VersiGard Gray 20" Peel & Stick EPDM Cured Flashing** - A 20" wide by 50' long VersiGard (black), VersiGard White (white) or VersiGard (gray) cured 60-mil thick EPDM membrane, with Quick-Applied Tape the full width already applied, used to flash curbs/skylights, etc.

F. **VersiGard Black / VersiGard White or VersiGard Gray Quick-Applied "T" Joint Covers:** A factory cut uncured 60-mil thick EPDM flashing laminated to a nominal 30-mil Quick-Applied Tape, used to overlay field splice intersections and to cover field splices at angle changes; available in 6" x 6" and 12" x 12" sizes for VersiGard (black) and 6" x 6" sizes for VersiGard White and VersiGard (gray).

G. **VersiGard Black / VersiGard White or VersiGard Gray Quick-Applied Inside/Outside Corner:** A 7" x 9" precut 60-mil thick (black, gray or white) Uncured Flashing with a 30-mil Quick-Applied Tape; used for inside and outside corners, to overlay field splice intersections, and to cover field splices at angle changes.

H. **VersiGard Black / VersiGard White or VersiGard Gray Quick-Applied Pipe Seals** with Quick-Applied Tape on the deck flange are available for use with VersiGard Black / VersiGard White or VersiGard Gray Roofing Systems:

1. VersiGard (black) Qucik-Applied Pipe Seals are available in sizes: 1/2" to 3" and 1" to 6".

2. VersiGard White (white) and VersiGard (gray) Qucik-Applied Pipe Seals are available in one size: 1" to 6".

I. **VersiGard Black / VersiGard White or VersiGard Gray Quick-Applied Pourable Sealer Pocket**: A pre-fabricated Pourable Sealer Pocket which consists of a 2" wide plastic support strip with Quick-Applied, adhesive backed uncured Flashing; available in 4", 6" and 8" diameters for VersiGard (black), 6" diameter for VersiGard (gray) and 6" and 8" diameter for VersiGard White (white).

2.04 TPO FLASHING ACCESSORIES

A. **VersiWeld Flashing:** VersiWeld non-reinforced flashing is available in rolls 12" and 24" wide by 50' long. Flashing is used for inside/outside corners and field fabricated pipe flashings when the use of pre-molded or pre-fabricated accessories is not feasible. In addition, 45-mil by 6" wide by 100' long, 60-mil by 6" wide by 100' long, 9" wide by 50' long and 80-mil by 9" wide by 50' long VersiWeld reinforced membrane is available for overlaying fasteners and fastening plates.

B. **VersiWeld Pressure-Sensitive Cover Strip:** A nominal 30-mil thick non-reinforced TPO membrane laminated to nominal 30-mil thick cured synthetic rubber pressure-sensitive adhesive used in conjunction with TPO Primer or Low-VOC TPO Primer to strip in flat metal flanges (i.e., drip edges). Available in rolls 6" wide by 100' long in colors of white, gray or tan. Not for use on 25—year or 30-year Warranty projects.

C. **VersiWeld TPO Reinforced Overlayment Strip:** A heat-weldable, reinforced thermoplastic polyolefin membrane. It is available in 45-mil 6" x 100' and 60-mil 6" x 100' and 9" x 50' rolls in colors of white, gray or tan. It can be used to cover end laps on VersiFleece and QA TPO systems and to strip in flat metal flanges on details such as TPO coated drip edges, gravel stops, and scuppers.

D. **APEEL Cover Tape:** A 6"-wide, 1,640' long roll of APEEL Protective Film used to protect areas of VersiWeld TPO membranes where APEEL Protective Film has been removed (around details) or was not factory applied (seams). APEEL Cover Tape allows contractors to keep 100 percent of the TPO surface clean during installation and is applied using the APEEL Cover Tape Applicator.

E. **VersiWeld TPO Pressure-Sensitive RUSS:** A nominal 6" and 10" wide, 45-mil thick reinforced TPO membrane with nominal 3" wide 35-mil thick cured synthetic rubber pressure-sensitive tape adhesive laminated along one edge on 6" wide RUSS and along both edges on 10" wide RUSS. Used in conjunction with TPO Primer or Low-VOC TPO Primer. 6" wide RUSS is used as a base membrane securement along walls, curbs, etc.; 10" wide RUSS is used to form perimeter sheets on Mechanically Attached Systems.

F. **VersiWeld TPO T-Joint Covers:** A 60-mil thick injection molded TPO flashing formed into a 4.5" diameter circle used to seal step-offs at splice intersections. Installation is mandatory on all 60, 72, and 80-mil TPO systems and on 45-mil systems where step-offs have not been properly sealed. Packaged in boxes of 100. Available in white, tan or gray.

G. **Yellow Pressure-Sensitive (PS) Warning Strip:** A nominal 30-mil-thick non-reinforced TPO flashing laminated to a nominal 30-mil-thick, fully cured synthetic rubber Pressure-Sensitive adhesive and is available in 6" wide by 100' long rolls. Yellow Pressure-Sensitive Warning Strip can be applied to EPDM, TPO or Hypalon roofing systems to provide a visual warning of an impending hazard (i.e. roof edge, deep drain sump, skylight).

H. **VersiWeld TPO Rib Profile:** Used to obtain the appearance of standing seam metal roofing with the performance of a TPO single-ply membrane. The Rib Profile measures 1-1/4" tall and 1-3/4" wide, including the welding flanges, while

the vertical profile is a substantial 3/8” thick. The profile has a continuous 1/8” diameter alignment hole, for use with fiberglass connecting pins, as well as a 1/8” fiberglass reinforcing cord for added strength. The Rib Profile is available in white, gray and tan, as well as Special Colors (Medium Bronze, Rock Brown, Terra Cotta, Slate Gray and Patina Green) in 10’ lengths and packaged 20 per carton.

I. **Pre-Molded Accessories:**

1. **Inside Corners:** A pre-molded corner flashing for inside corners. Available in white, gray or tan; 60-mil thick.

2. **Outside Corners**: A one-piece injection molded corner flashing used for flashing outside corners. Available in white, gray or tan; 60-mil thick.

3. **TPO Curb Wrap Corners:** A prefabricated flashing made of 60-mil thick reinforced VersiWeld Detail membrane designed to reduce installation time to flash a curb when compared to conventional methods. Each corner is fabricated with a 6" wide base flange and a 12" overall height. Four sizes are available to fit curbs up to 6' by 6' in size. One curb requires 4 corners for a complete installation. TPO Curb Corners are packaged in boxes containing twelve corners. Custom sizes are available as a special order product requiring lead time.

4. **TPO Universal Corners:** a pre-molded flashing for use in a variety of corner details, including inside and outside corners. Available in white, gray and tan and are 60-mil thick.

5. **Pipe Flashings**: A pre-molded white, gray or tan pipe flashing used for pipe penetrations. Available for 3/4” –8” diameter pipes with clamping rings included.

6. **Split Pipe Seals:** A prefabricated flashing consisting of 60-mil thick reinforced VersiWeld Detail Membrane for pipes 1" – 6" in diameter. A split (cut) and overlapped tab are incorporated to allow the pipe seal to be opened and wrapped around the pipe when it is not possible to pull a standard pipe flashing over a round penetration. Custom sizes are available as a special order product requiring lead time.

7. **TPO Square Tubing Wraps:** A prefabricated flashing made of 60-mil thick reinforced VersiWeld Detail membrane for square tubing. A split (cut) and overlap tab are incorporated into these parts to allow the seals to be opened and wrapped around a square penetration. Available for 3", 4", 5" and 6" square tubing.

8. **Molded TPO Sealant Pocket:** A pre-fabricated, interlocking, 2-piece, injection molded, flexible pocket with a rigid polypropylene vertical wall and pre-formed deck flanges. Pockets can be adjusted from 11.5” to 7.5” in length by 6” in width by following the cutting lines molded into the pocket. Used in conjunction with White One-Part Pourable Sealer for waterproofing pipe clusters or other odd shaped penetrations. Available in white, gray or tan.

9. **Pre-fabricated Sealant Pocket:** A two-piece, pre-fabricated sealant pocket that utilizes reinforced 60-mil TPO membrane and coated metal to form a rigid, oversized sealant pocket with a weldable horizontal deck flange. Available in 12" (total volume of 1.87 gallons). Packaged 2 per carton and available in white only. Refer to the applicable Technical Data Bulletin for dimensions and installation instructions. Custom sizes are available as special order product.

10. **Sealant Pocket Extension Legs:** Designed for use with the TPO Molded Sealant Pocket and the Pre-Fabricated Sealant Pocket to extend the length in increments of 10". Fabricated from 60-mil thick reinforced TPO membrane and TPO coated metal. Can be used full length, cut to size for customized lengths or welded to each other for extra long applications. Packaged 10 legs per carton and available in white only.

2.05 PVC FLASHING ACCESSORIES

A. **VersiFlex PVC non-reinforced Flashing** is 60-mil thick (white, gray, light gray, slate gray and tan) and available in rolls 12" and 24" wide by 50' long. Flashing is used for inside/outside corners and field fabricated pipe flashings when use of pre-molded accessories is not feasible.

B. **VersiFlex PVC Reinforced Cover Strip:** A 8” wide, nominal 60-mil and 80-mil thick, polyester reinforced PVC membrane. Used for stripping in rows of fasteners and plates and covering the butt joints of VersiFlex PVC membranes. Available in rolls 8" wide by 75' long in colors of white, gray or tan. Also available in 60-mil in rolls of 8" wide by 100' long in white only.

C. **VersiFlex KEE HP Reinforced Cover Strip:** A 8” wide, nominal 60-mil and 80-mil thick, polyester reinforced KEE HP PVC membrane. Used for stripping in rows of fasteners and plates and covering the butt joints of VersiFlex KEE HP

PVC membranes. Available in rolls 8" wide by 75' long in colors of white, gray or tan, also available in 60-mil in rolls of 8” wide by 100’ long in white only.

D. **VersiFlex PVC Pressure-Sensitive Cover Strip:** A 6” wide, nominal 35-mil thick non-reinforced KEE HP flashing laminated to a nominal 35-mil, fully cured, pressure-sensitive, synthetic rubber adhesive. Used for stripping in flat metal edgings (i.e. drip edge) of VersiFlex PVC and KEE HP PVC membranes. Available in rolls 6" wide by 100' long in colors of white, gray or tan. Used in conjunction with PVC Step 1 Activator and PVC Step 2 Primer.

E. **VersiFlex PVC “T” Joint Cover:** A 4-1/2" diameter, 60-mil thick (white) or 40-mil (gray or tan), pre-cut non-reinforced PVC flashing used to overlay “T” joints at field splices when 80-mil VersiFlex PVC membrane is used.

F. **APEEL Cover Tape:** A 6"-wide, 1,640' long roll of APEEL Protective Film used to protect areas of VersiFlex PVC/KEE HP membranes where APEEL Protective Film has been removed (around details) or was not factory applied (seams). APEEL Cover Tape allows contractors to keep 100 percent of the PVC/KEE HP surface clean during installation and is applied using the APEEL Cover Tape Applicator.

G. **VersiFlex PVC Yellow Pressure-Sensitive Warning Strip**: a nominal 30-mil-thick, non-reinforced membrane flashing laminated to a nominal 30-mil-thick, fully cured, synthetic rubber, pressure-sensitive adhesive and is available in 6"-wide by 100'-long rolls. Pressure-Sensitive Warning Strip can be applied to VersiFlex PVC or KEE HP systems to provide a visual warning of an impending hazard (e.g., roof edge, deep drain sump, skylight, etc.).

H. **VersiFlex PVC Rib Profile:** Used to obtain the appearance of standing seam metal roofing with the performance of a PVC single-ply membrane. The Rib Profile measures 1-1/4” tall and 2-1/8” wide, including the welding flanges, while the vertical profile is a substantial 3/8” thick. The profile has a continuous 1/8” diameter alignment hole, for use with fiberglass connecting pins, as well as a 1/8” fiberglass reinforcing cord for added strength. The Rib Profile is available in white, gray, light gray, slate gray and tan, 10’ lengths and packaged 20 per carton.

I. **Pre-Molded Accessories:**

1. **VersiFlex PVC Inside Corners:** A pre-molded flashing for inside corners. Available in white, gray or tan; 60-mil thick.

2. **VersiFlex PVC Outside Corners**: A pre-molded flashing for outside corners. Available in white, gray or tan; 60-mil thick.

3. **VersiFlex PVC Curb Wrap Corners:** Fabricated flashings are made of 60-mil thick reinforced VersiFlex KEE HP PVC Detail membrane designed to reduce installation time to flash a curb when compared to conventional methods. Each corner is fabricated with a 6" wide base flange and a 12" overall height. Three sizes are available to fit curbs up to 3' by 3' in size. One curb requires 4 corners for a complete installation. PVC Curb Wrap Corners are packaged in boxes containing twelve corners. Custom sizes are available as a special order product requiring lead time.

4. **PVC Universal Corners:** a pre-molded flashing for use in a variety of corner details, including inside and outside corners. Available in white, tan, gray, and light gray; 60-mil thick.

5. **VersiFlex PVC Pipe Flashings:** A pre-molded (white, tan, gray and light gray) pipe flashing used for pipe penetrations. Available for 3/4" – 8" diameter pipes with clamping rings included.

6. **VersiFlex PVC Split Pipe Seals:** A prefabricated flashing consisting of 60-mil thick reinforced VersiFlex Membrane for pipes 1" – 6" in diameter. A split (cut) and overlapped tab are incorporated to allow the pipe seal to be opened and wrapped around the pipe when it is not possible to pull a standard pipe flashing over a round penetration. Available in white, gray or tan.

7. **VersiFlex PVC Square Tubing Wraps:** Fabricated flashings made of 60-mil thick reinforced VersiFlex membrane for square tubing. A split (cut) and overlap tab are incorporated into these parts to allow the seals to be opened and wrapped around a square penetration. Available for 3", 4" and 6" diameter square tubing. Available in white and gray.

8. **VersiFlex PVC Molded Sealant Pockets:** A pre-fabricated, interlocking, 2-piece, injection molded, flexible pocket with a rigid PVC vertical wall and pre-formed deck flanges. Used in conjunction with White One-Part Pourable Sealer for waterproofing pipe clusters or other odd shaped penetrations. Pockets can be adjusted from 11.5” to 7.5” in length by 6” in width by following the cutting lines molded in the pocket. Available in white only.

2.06 CLEANERS, PRIMERS, ADHESIVES AND SEALANTS

Refer to Technical Data Bulletins for material coverage rates and proper usage. Prior to the use of any of the products listed below, consult the Safety Data Sheets for applicable cautions and warnings.

A. **Low-VOC Membrane Cleaner –** 100% EPA-exempted solvents; used to remove dirt and other contaminants from both new and in-service EPDM, TPO and PVC membranes. Effectively prepares EPDM and TPO for primer application.

B. **Versico Weathered Membrane Cleaner –** A clear, solvent-based cleaner used to loosen and remove dirt and other contaminants from the surface of exposed EPDM or TPO membrane (for repairs, etc.) prior to applying Splice Cleaner or Primer. Weathered Membrane Cleaner can also be used in lieu of splice cleaner when applying Splicing Cement. Available in 5-gallon pails.

C. **Versico V-150 Primer –** A solvent-based primer used to prepare the surface of EPDM or TPO membrane for application of QA Seam Tape or Quick-Applied products.

D. **Flexible DASH Adhesive –** A two-component (Part A and B), spray applied, low-rise adhesive for bonding VersiFleece membrane to various surfaces. Flexible DASH Adhesive can also be used as an insulation adhesive over compatible substrates. When used for membrane securement, a coverage rate of approximately 10,000 square feet per 50-gallon "drum set" or 3,000 square feet per 15-gallon drum set can be achieved.

E. **OlyBond 500™ BA** – A two-component, polyurethane, low-rise expanding adhesive used to bond insulation to various substrates. Packaged in 5-gallon pails of Part A and Part B formulations that are applied using a mechanical dispenser system. Applied in 1/2" to 3/4" beads or ribbons at the rate of 1 gallon per 150-250 square feet for 12" o.c. bead spacing. Perimeter bead spacing patterns and acceptable insulation and deck types are listed in the applicable Technical Data Bulletin.

F. **OlyBond Spot Shot** – A two-component, polyurethane construction grade, low-rising expanding adhesive designed for bonding insulation to various substrates. Applied in 1/2" to 3/4" beads or ribbons using a portable 1:1 applicator (oversized, dual-cartridge caulking gun). Refer to the Technical Data Bulletin for bead spacing with reference to building height.

G. **Universal Single-Ply Sealant –** A 100% solids, solvent free, one-part, polyether sealant that provides a weather tight seal to a variety of building substrates. Can be used as a termination bar sealant or for use in counterflashing, coping, and scupper details. Available in white only.

H. **Water Cut-Off Mastic:** Used as a mastic to prevent moisture migration at drains, compression terminations and beneath conventional metal edging (at a coverage rate of approximately 10' per tube or 100' per gallon).

I. **EPDM CLEANERS, PRIMERS, ADHESIVES AND SEALANTS**

1. **VersiGard or VersiGard White Pressure-Sensitive QA Seam Tape –** A 3" or 6" wide (used for Mechanically-Attached Roofing Systems and 20-year Warranty Systems) by 100' long splice tape used for splicing adjoining sections of EPDM membrane. Complies with the South Coast Air Quality Management District Rule 1168.

2. **Low VOC EPDM and TPO Primer** – A low VOC (volatile organic compound) primer (less than 250 grams/liter) for use with QA Seam Tape or Pressure-Sensitive products. Available in 1 gallon pails.

3. **VersiGard White Splicing Cement (for use with VersiGard White membrane systems only) –** A high-strength, butyl-based contact cement, which is used for splicing adjoining sections of EPDM membrane (cured or uncured).

4. **VersiGard or VersiGard White Lap Sealant** – A black, heavy-bodied material (trowel or gun-consistency) used to seal the exposed edges of a membrane splice. A pre-formed Lap Sealant tool is included in each carton of Lap Sealant.

    a. VersiGard Lap Sealant – Black sealant for use with VersiGard (black) Roofing Systems.

    b. VersiGard White Lap Sealant – White sealant for use with VersiGard White (white-on-black) Roofing Systems.

5. **G200-SA Bonding Adhesive –** A high-strength, yellow colored, synthetic rubber adhesive used for bonding VersiGard/VersiGard White EPDM membranes to various surfaces.

6. **EPDM X-23 Low VOC Bonding Adhesive –** A low VOC (volatile organic compound) bonding adhesive (less than 250 grams/liter) used for binding VersiGard/VersiGard White EPDM membranes to various surfaces. Adhesive is available in 5 gallon pails.

7. **Low VOC Bonding Adhesive** – A low VOC (volatile organic compound) bonding adhesive (less than 250 grams/liter) used for binding VersiGard/VersiGard White EPDM membranes to various surfaces. Adhesive is available in 5 gallon pails.

8. **Aqua Base 120 Bonding Adhesive** (for use in areas where volatile organic compound, VOC, regulations are in effect): A semi-pressure-sensitive water based adhesive; used as a 2-sided contact adhesive for bonding VersiGard/VersiGard White EPDM membrane to various surfaces. Complies with the South Coast Air Quality Management District Rule 1168.

9. **CAV-GRIP 3V Low-VOC Aerosol Contact Adhesive/Primer:** a low-VOC, methylene chloride-free adhesive that can be used for a variety of applications including: priming unexposed asphalt prior to applying Flexible DASH Adhesive, adhering VersiGard EPDM, horizontally, for the field of the roof, and for adhering VersiGard VersiFleece and VersiGard EPDM membrane to vertical walls. Coverage rate is approximately 2,000-2,500 sq. ft. per 40 lb cylinder and 4,000-5,000 sq. ft. per 85 lb cylinder as a primer, in a single-sided application and 750 sq. ft. per 40 lb cylinder and 1,500 sq. ft. per 85 lb cylinder as an adhesive for vertical walls, in a double-sided application; 1,000 sq. ft. per 40 lb cylinder and 2,000 sq. ft. per 85 lb cylinder as an adhesive, horizontally, for the field of the roof, in a double-sided application.

10. **Pourable Sealer –** A black, two-component, solvent-free, polyurethane based product used for tie-ins and as a sealant around hard-to-flash membrane penetrating objects such as clusters of pipes and for a daily seal when the completion of flashings and terminations cannot be completed by the end of each work day.

11. **VersiGard One-Part Pourable Sealer –** A black, one-component, moisture curing, elastomeric polyether sealant used for attaching lightning rod bases and ground cable clips to the membrane surface and as a sealant around hard-to-flash penetrations such as clusters of pipes.

J. **TPO CLEANERS, PRIMERS, ADHESIVES AND SEALANTS**

1. **TPO Primer:** A solvent-based primer used to prepare the surface of VersiWeld Membrane prior to application of Pressure-Sensitive Coverstrip and TPO Pressure-Sensitive RUSS.

2. **TPO Low VOC Primer:** A solvent-based, low solids primer used to prepare the surface of VersiWeld Membrane prior to application of Pressure-Sensitive Coverstrip and TPO Pressure-Sensitive RUSS. This low VOC product is ideal for use in states where environmental issues are a concern.

3. **CAV-PRIME Low VOC Primer:** A solvent-based, one-step primer for one-step priming of TPO surfaces prior to the application of Factory-Applied QA Seam Tape, Coverstrip, QA Seam Tape and all other pressure-sensitive products.

4. **VersiWeld Bonding Adhesive –** A high-strength, synthetic rubber adhesive used for bonding VersiWeld membrane to various surfaces. The adhesive is applied to both the membrane and the substrate at a coverage rate of approximately 60 square feet per gallon per finished surface (includes coverage on both surfaces).

5. **Low-VOC Bonding Adhesive for TPO:** This product meets the <250 gpl VOC (volatile organic compound) content requirements of the OTC Model Rule for Single-Ply Roofing Adhesives. A high strength, solvent-based contact adhesive that allows bonding of TPO membrane to various porous and non-porous substrates. Apply at a rate of 60 ft2 per gallon finished surface. Available in 5-gallon pails. **This product does not comply with certain counties in the State of California which have additional restrictions on solvents.**

6. **Low VOC Bonding Adhesive 1168:** This product meets the <250 gpl VOC (volatile organic compound) content requirements of the OTC Model Rule for Single Ply Roofing Adhesives. A high strength, solvent-based contact adhesive that allows bonding of TPO membrane to various porous and non-porous substrates. Apply at a rate of 60 ft2 per gallon finished surface. Available in 5-gallon cans. **This product complies with all counties in the State of California which have additional restrictions on solvents.** See Versico's Technical Data Bulletin for a listing of the counties involved.

7. **Aqua Base 120 Bonding Adhesive** – A semi pressure-sensitive, water based adhesive used as a two-sided contact adhesive. Coverage rate is 120 square feet per gallon finished surface (applied to membrane and substrate). Refer to Spec Supplement G-09 "Aqua Base 120 Bonding Adhesive" for Warranty limitations and other considerations.

8. **CAV-GRIP 3V Low-VOC Aerosol Contact Adhesive/Primer:** a low-VOC, methylene chloride-free adhesive that can be used for a variety of applications including: priming unexposed asphalt prior to applying Flexible DASH Adhesive, adhering VersiWeld TPO membrane, horizontally, for the field of the roof, and for adhering VersiWeld VersiFleece and VersiWeld TPO membrane to vertical walls. Coverage rate is approximately 2,000-

2,500 sq. ft. per #40 cylinder and 4,000-5,000 sq. ft. per #85 cylinder as a primer, in a single-sided application; 750 sq. ft. per #40 cylinder and 1,500 sq. ft. per #85 cylinder as an adhesive for vertical walls, in a double-sided application; 1,000 sq. ft. per #40 cylinder and 2,000 sq. ft. per #85 cylinder as an adhesive, horizontally, for the field of the roof, in a double-sided application.

9. **Cut-Edge Sealant –** A white or clear colored sealant used to seal cut edges of reinforced VersiWeld membrane. A coverage rate of approximately 225 - 275 linear feet per squeeze bottle can be achieved when a 1/8" diameter bead is applied.

10. **Thermoplastic One-Part Pourable Sealer –** A one-part, moisture curing, elastomeric polyether sealant used to fill TPO Molded Pourable Sealant Pockets. Packaged in 4, 2-liter foil pouches inside a reusable plastic bucket. 1 pouch will fill 2 TPO Molded Pourable Sealant Pockets. Available in white.

K. **PVC CLEANERS, PRIMERS, ADHESIVES AND SEALANTS**

1. **Low-VOC PVC Bonding Adhesive:** A high-strength solvent based adhesive that allows bonding of PVC and KEE-enhanced PVC membrane to various porous and non-porous substrates. The adhesive is applied to both the membrane and the substrate at a coverage rate of approximately 60 square feet per gallon per finished surface (includes coverage on both surfaces).

2. **Hydrobond Water-Based Adhesive:** A wet lay-in, one-sided dispersion adhesive. Compatible with only VersiFlex PVC smooth-backed and VersiFleece membranes, this product is ideal for bonding only PVC membranes to various porous and non-porous substrates (cannot be used with any KEE or KEE HP PVC bareback membranes). Coverage rates vary between 100-133 square foot per gallon using roller or spray applications.

3. **CAV-GRIP PVC Aerosol Contact Adhesive:** a low-VOC, methylene chloride-free adhesive that can be used for a variety of applications including, adhering PVC bareback membranes to a variety of horizontal substrates and vertical walls (cannot be used with any KEE or KEE HP bareback membranes), as well as adhering VersiFleece membranes to vertical walls. Coverage rate is approximately 1,500-2,000 sq. ft. per #40 cylinder and 3,000-4,000 sq. ft. per #85 cylinder as a primer, in a single sided application; 400 sq. ft. per #40 cylinder and 800 sq. ft. per #85 cylinder as an adhesive for vertical walls, in a double-sided application; 750 sq. ft. per #40 cylinder and 1,500 sq. ft. per #85 cylinder as an adhesive, horizontally, for the field of the roof, in a double-sided applications.

4. **VersiFlex PVC Cut-Edge Sealant:** A clear-colored sealant used to seal cut edges of reinforced VersiFlex membrane. A coverage rate of approximately 225 - 275 linear feet per squeeze bottle can be achieved when a 1/8" diameter bead is applied. Use of Cut-Edge Sealant to seal cut edges of PVC or KEE HP PVC Membranes is not required.

5. **Water Cut-Off Mastic:** Used as mastic to prevent moisture migration at drains, compression terminations and beneath conventional metal edging (at a coverage rate of approximately 10' per tube or 100' per gallon).

6. **Universal Single-Ply Sealant:** A 100% solids, solvent free, one-part, polyether sealant that provides a weather tight seal to a variety of building substrates. Can be used as a termination bar sealant or for use in counterflashing, coping, and scupper details.

7. **White One-Part Pourable Sealer:** A one-part, moisture curing, elastomeric polyether sealant used to fill Molded Sealant Pockets. Packaged in four 1/2 gallon pouches per plastic bucket. One pouch will fill 122 cubic inches of volume within a molded sealant pocket.

8. **PVC and KEE HP Membrane Cleaner:** Used to prepare PVC and KEE HP PVC membranes that have been exposed to the elements for approximately 7 days prior to heat welding or to remove general construction dirt. Approximate coverage rate of 400 square feet per gallon (one surface).

9. **VersiFlex Low-VOC PVC Step 1 Activator:** A high-strength, solvent-based activator that allows PVC Pressure-Sensitive (PS) Cover Strip to be bonded to VersiFlex PVC or KEE HP membranes. Low-VOC PVC Step 1 Activator meets the < 250 gpl VOC content requirements of the OTC Model Rule. It is specially formulated using a blend of VOC-exempt and non-exempt solvents and follows the state of California Clean Air Act of 1988 (updated in 1997) as further regulated by California's Air Quality Control Districts listing VOC limitations.

10. **VersiFlex Low-VOC PVC Step 2 Primer:** A high-solids-content, polymer based splice primer. This product is applied to KEE HP and PVC membranes to improve the adhesion of PVC Pressure-Sensitive Cover Strip. Low-VOC PVC Step 2 Primer meets the < 250 gpl VOC content requirements of the OTC Model Rule.

11. **VersiFlex PVC Step 2 Primer:** A high-solids-content, clear (translucent color), polymer-based splice primer used to prepare KEE HP and PVC membranes to be bonded to PVC Pressure-Sensitive Cover Strip.

2.07 FASTENING COMPONENTS

Refer to specific application requirements in the Versico Specification and Detail Manual.

A. **HPV Fastener –** A threaded, black epoxy electro-deposition coated (E-Coat) fastener for use with steel, wood plank, minimum 15/32" thick plywood or minimum 7/16" thick oriented strand board.

B. **HPVX Fasteners –** A heavy-duty #15 threaded fastener with a Phillips head for use primarily on Adhered assemblies where increased pullout resistance is necessary. Used for steel and wood decks.

C. **HPV-XL Fastener –** An oversized diameter #21 (.315") steel threaded fastener used in conjunction with Piranha Xtra Plates for membrane securement into minimum 22-gauge steel or wood decks.

D. **InsulTite Fasteners –** A threaded, Phillips head fastener used with 3" diameter Versico Insulation Plates. Used for insulation attachment into steel or wood decks.

E. **Pre-Assembled InsulTite ASAP Fasteners –** Versico's InsulTite Fastener and pre-assembled 3" diameter Plastic Insulation Plate used **for insulation attachment only** on Adhered and Mechanically-Attached Roofing Systems. Installed using Olympic Fastening Tools.

F. **CD-10 Concrete Fastener –** A hammer-driven, non-threaded, black epoxy electro-deposition coated (E-Coat) fastener for use with structural concrete decks rated 3,000 psi or greater.

G. **MP 14-10 Concrete Fastener –** A #14 threaded fastener used for minimum 3,000 psi concrete decks.

H. **Polymer Gyptec Fastener: A** glass-filled nylon auger fastener designed for securing insulation and/or membrane to specialty decks such as cement wood fiber or gypsum.

I. **Lite-Deck Fastener:** A deep, coarse threaded fastener used to secure insulation to gypsum and cementitious wood fiber decks in conjunction with Lite-Deck Plates.

J. **Term Bar Nail-In –** A 1-1/4" long expansion anchor with threaded drive pin used for fastening VersiGard Termination Bar or Seam Fastening Plates to concrete, brick or block walls. The fastener is set by hammering the drive pin into place.

K. **Polymer Seam Plate**: A 2" diameter plastic barbed fastening plate used with Versico HPV Fasteners for membrane and Pressure-Sensitive RUSS securement for Mechanically Attached Roofing Systems over steel roof decks.

L. **HPV-XL Polymer Seam Plate:** A 2 3/8” diameter plastic barbed fastening plate used with HPV-XL Fasteners for membrane and Pressure-Sensitive RUSS securement for Mechanically Attached Roofing Systems over steel roof decks.

M. **Seam Fastening Plates –** A 2" diameter metal plate used for insulation attachment on Mechanically-Attached Roofing Systems or membrane securement on Adhered Roofing Systems in conjunction with the appropriate Versico Fastener.

N. **Insulation Fastening Plates –** A nominal 3" diameter metal plate used for insulation attachment in conjunction with the appropriate Versico Fastener.

O. **EPDM FASTENING COMPONENTS**

1. **VersiGard Quick-Applied RTS (Reinforced Termination Strip) – A 6" or 9"** wide, nominal 45-mil thick, clean, cured reinforced EPDM black membrane with 3" wide Factory-Applied QA Seam Tape laminated along one edge for the 6" wide RTS and along both edges for the 9" wide RTS.

    a. **6" wide Pressure-Sensitive RTS** is used horizontally or vertically at the base of walls, curbs, etc., in conjunction with 2" diameter Fastening Plates below the EPDM deck membrane for additional membrane securement (Polymer Seam Plates are required for Mechanically Attached Roofing Systems over steel decks).

    b. **9" wide Pressure-Sensitive RTS** is utilized for perimeter membrane securement on VersiGard Mechanically Attached Roofing Systems.

2. **VersiGard White Quick-Applied RTS** (Reinforced Termination Strip) – A 6" wide, nominal 45-mil thick, clean, cured, white reinforced EPDM membrane with 3" wide Factory-Applied QA Seam Tape laminated along one edge. Used on VersiGard White Adhered Roofing Systems.

3. **HPVX Plate:** A 2-3/8" diameter metal barbed fastening plate used with Versico HPVX, CD-10 or MP 14-10 Fasteners for membrane or insulation securement. This plate can be used for membrane or insulation securement on Mechanically Attached Roofing Systems.

4. **HPV-XL Plate:** A 2-3/8" diameter metal barbed fastening plate with an oversized hole for use with Versico HPV-XL Fasteners for membrane securement on Mechanically Attached Roofing Systems.

5. **Polymer Seam Plate** – A 2" diameter plastic barbed fastening plate used with Versico HPV Fasteners for membrane and Quick Applied RTS securement for Mechanically-Attached Roofing Systems over steel roof decks. (Available pre-assembled.)

6. **Seam Fastening Plate** – A 2" diameter metal fastening plate used for membrane and RTS attachment on Mechanically-Attached Roofing Systems over wood or structural concrete decks. Seam Fastening Plates are also used in conjunction with RTS or EPDM membrane for additional membrane securement on Adhered or Ballasted Roofing Systems. This plate may be used for insulation attachment on Mechanically Attached Roofing Systems.

7. **Insulation Fastening Plate** – A nominal 3" diameter FM approved metal plate used for insulation attachment in conjunction with VersiGard Fasteners.

8. **SecurFast Insulation Fastening Plates:** A nominal 2-7/8” hexagon metal plate used for insulation attachment in conjunction with the appropriate Versico Fastener.

9. **Accutrac Insulation Plates:** A nominal 3” square, recessed or flat bottomed, metal plate used for insulation attachment in conjunction with the appropriate Versico Fastener. Flat bottom plate is used with manufactured Philips Head fasteners only.

P. **TPO FASTENING COMPONENTS**

1. **TPO Pressure-Sensitive RUSS –** A nominal 6" and 10" wide, .045" thick reinforced TPO membrane with nominal 3" wide 35-mil thick cured synthetic rubber pressure-sensitive adhesive laminated along one end on 6" wide RUSS and along both ends on 10" wide RUSS. Used in conjunction with TPO Primer. 6" wide RUSS is used as a base membrane securement along walls, curbs, etc.; 10" wide RUSS is used to form perimeter sheets on Mechanically Attached Systems.

   a. **6" wide Pressure-Sensitive RUSS** is used horizontally or vertically at the base of walls, curbs, etc., in conjunction with Seam Fastening Plates below the VersiWeld TPO deck membrane for additional membrane securement. Available in rolls 100’ long, 2 per carton.

   b. **10" wide Pressure-Sensitive RUSS** is utilized for perimeter membrane securement along the center of field sheets to form perimeter membranes. Available in rolls 100' long, 1 per carton

2. **HPVX Fastener:** A heavy duty #15 threaded fastener with a #3 Phillips drive used with Versico’s HPVX Fastening Plate to secure Mechanically Attached Roofing Systems. It is used on minimum 22-gauge steel decks or minimum 15/32" CDX plywood decks. It is also designed to offer an optimum combination of driving performance, back-out and corrosion resistance with excellent pullout performance.

3. **HPV-XL Fastener:** An oversized diameter #22 (.315") steel, threaded fastener used in conjunction with HPV-XL Plates for membrane securement into minimum 22-gauge steel or wood decks on Mechanically Attached Roofing Systems.

4. **HPV Fastener:** A threaded E-coat square head fastener for insulation attachment only. Used into steel, wood plank, minimum 15/32" thick plywood or minimum 7/16" thick oriented strand board (OSB).

5. **Pre-Assembled InsulTite ASAP Fastener:** Versico’s InsulTite Fastener pre-assembled with a 3" diameter plastic plate used for insulation attachment only on Adhered and Mechanically Attached Roofing Systems. Installed using OMG Roofing Products Fastening Tool.

6. **InsulTite Fastener:** A threaded Phillips drive fastener used with Versico Insulation Plates for insulation attachment to steel or wood decks.

7. **CD-10 Fastener:** A hammer-driven, non-threaded E-Coat fastener for use with structural concrete decks rated 3,000 psi or greater.

8. **MP 14-10 Concrete Fastener:** A #14 threaded fastener with a #3 Phillips drive used for minimum 3,000 psi concrete decks.

9. **Polymer Gyptec Fastener:** A glass-filled nylon auger fastener designed for securing insulation and/or membrane to specialty decks such as cement wood fiber or gypsum.

10. **Lite-Deck Fastener:** A deep, coarse threaded fastener used to secure insulation to gypsum and cementitious wood fiber decks in conjunction with Lite-Deck Plates.

11. **HPVX Plate:** A 2-3/8" diameter metal barbed fastening plate used with Versico HPVX, CD-10 or MP 14-10 Fasteners for membrane or insulation securement. This plate can be used for membrane or insulation securement on Mechanically Attached Roofing Systems.

12. **HPV-XL Plate:** A 2-3/8" diameter metal barbed fastening plate with an oversized hole for use with Versico HPV-XL Fasteners for membrane securement on Mechanically Attached Roofing Systems.

13. **Seam Fastening Plate:** A 2" diameter metal plate used for insulation attachment on Mechanically Attached Systems or membrane securement at angle changes on Adhered Systems in conjunction with the appropriate Versico Fastener.

14. **Insulation Fastening Plate:** A nominal 3-inch metal plate used for insulation attachment in conjunction with the appropriate Versico Fastener.

15. **SecurFast Insulation Fastening Plates:** A nominal 2-7/8” hexagon metal plate used for insulation attachment in conjunction with the appropriate Versico Fastener.

16. **Accutrac Insulation Plates:** A nominal 3” square, recessed or flat bottomed, metal plate used for insulation attachment in conjunction with the appropriate Versico Fastener. Flat bottom plate is used with manufactured Philips Head fasteners only.

Q. **PVC FASTENING COMPONENTS**

1. **HPVX Fastener:** A heavy duty #15 threaded fastener with a #3 Phillips drive used with Versico’s HPVX Fastening Plate to secure Mechanically Attached Roofing Systems. It is used on minimum 22-gauge steel decks or minimum 15/32" CDX plywood decks. It is also designed to offer an optimum combination of driving performance, back-out and corrosion resistance with excellent pullout performance.

2. **HPV-XL Fastener:** An oversized diameter #22 (.315") steel, threaded fastener used in conjunction with HPV-XL Plates for membrane securement into minimum 22-gauge steel or wood decks on Mechanically Attached Roofing Systems.

3. **HPV Fastener:** A threaded E-coat square head fastener for insulation attachment only. Used into steel, wood plank, minimum 15/32" thick plywood or minimum 7/16" thick oriented strand board (OSB).

4. **Pre-Assembled InsulTite ASAP Fastener:** Versico’s InsulTite Fastener pre-assembled with a 3" diameter plastic plate used for insulation attachment only on Adhered and Mechanically Attached Roofing Systems. Installed using OMG Roofing Products Fastening Tool.

5. **InsulTite Fastener:** A threaded Phillips drive fastener used with Versico Insulation Plates for insulation attachment to steel or wood decks.

6. **CD-10 Fastener: A** hammer-driven, non-threaded E-Coat fastener for use with structural concrete decks rated 3,000 psi or greater.

7. **MP 14-10 Concrete Fastener:** A #14 threaded fastener with a #3 Phillips drive used for minimum 3,000 psi concrete decks.

8. **Polymer Gyptec Fastener: A** glass-filled nylon auger fastener designed for securing insulation and/or membrane to specialty decks such as cement wood fiber or gypsum.

9. **Lite-Deck Fastener:** A deep, coarse threaded fastener used to secure insulation to gypsum and cementitious wood fiber decks in conjunction with Lite-Deck Plates.

10. **HPVX Plate:** A 2-3/8" diameter metal barbed fastening plate used with Versico HPVX, CD-10 or MP 14-10 Fasteners for membrane or insulation securement. This plate can be used for membrane or insulation securement on Mechanically Attached Roofing Systems.

11. **HPV-XL Plate:** A 2-3/8" diameter metal barbed fastening plate with an oversized hole for use with Versico HPV-XL Fasteners for membrane securement on Mechanically Attached Roofing Systems.

12. **Seam Fastening Plate: A** 2" diameter metal plate used for insulation attachment on Mechanically Attached Systems or membrane securement at angle changes on Adhered Systems in conjunction with the appropriate Versico Fastener.

13. **Insulation Fastening Plate: A** nominal 3-inch metal plate used for insulation attachment in conjunction with the appropriate Versico Fastener.

14. **SecurFast Insulation Fastening Plates:** A nominal 2-7/8" hexagon metal plate used for insulation attachment in conjunction with the appropriate Versico Fastener.

15. **Accutrac Insulation Plates:** A nominal 3" square, recessed or flat bottomed, metal plate used for insulation attachment in conjunction with the appropriate Versico Fastener. Flat bottom plate is used with manufactured Philips Head fasteners only.

16. **VersiFlex PVC Oval Barbed Plate:** A 2-3/4" x 1-1/2" oval metal barbed fastening plate for use with Versico HPV fasteners for securement of 10' wide PVC and KEE HP PVC membranes on Mechanically Attached Roofing Systems.

2.08 INSULATION/UNDERLAYMENT

EPS: EXPANDED POLYSTYRENE INSULATIONS						
Brand Name	**Board Size**	**Thickness**		**R-Value @40° F (5° C)**	**Minimum Compressive Strength (1)**	**Minimum Density**
		Inch	**cm**			
InsulFoam I ASTM C578	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/4"to 40"	0.625	1.04 (4.17 per inch)	10 psi (2)	1.0 pcf
InsulFoam VIII ASTM C578	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/4" to 40"	0.625	1.06 (4.25 per inch)	15 psi	1.25 pcf
InsulFoam II ASTM C578	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/4" to 40"	0.625	1.14 (4.55 per inch)	15 psi	1.50 pcf
InsulFoam IX ASTM C578	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/4" to 40"	0.625	1.19 (4.76 per inch)	25 psi	2.0 pcf
SecurShield HD EPS Composite (Expanded Polystyrene w/SecurShield HD)	4' X 8' (1.2 m X 2.4 m)	1.5" 2.0" 3.0" 4.0" 5.0" 6.0"	3.75 5.0 7.5 10.0 12.5 15.0	6.67 8.76 12.93 17.10 21.27 25.44	80 psi	1.0 to 3.0 pcf
InsulLam (Expanded Polystyrene w/OSB)	4' X 8' (1.2 m X 2.4 m)	1.5" 3.0" 4.0" 5.0" 6.0"	3.75 7.5 10.0 12.5 15.0	5.7 11.3 15.5 19.6 23.8	-	-
Insulfoam® SP ASTM C578	4' X 8' (1.2 m X 2.4 m)	1" 4.5" 4.75" 5.9" 7.0"	2.5 11.25 11.88 14.75 17.5	4.25 19.13 20.19 25.08 29.75	10 psi (2)	1.25 pcf

Notes:
(1) Compressive strength at 10% deformation.
(2) R-Value based on 15 year time-weighted average Long-Term Thermal Resistance (LTTR), following standard CAN/ULC-S770, which has been adopted by PIMA (Polyisocyanurate Insulation Manufacturer's Association).

A. **EPS: EXPANDED POLYSTYRENE INSULATIONS**

1. **InsulFoam I –** A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type I. Nominal density of 1.0 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from 1/4” to 40”. Custom lengths, widths and tapered boards are available. May be specified beneath Versico Recovery Board, DensDeck Prime, DensDeck StormX Prime, Securock, or DEXcell®.

2. **InsulFoam VIII –** A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type VIII. Nominal density of 1.25 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from ¼” to 40”. Custom lengths, widths and tapered boards are available. May be specified beneath Versico Recovery Board, DensDeck Prime, DensDeck StormX Prime, Securock or DEXcell®.

3. **InsulFoam II –** A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type II. Nominal density of 1.5 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from 1/4” to 40”. Custom lengths, widths and tapered boards are available. May be specified beneath Versico Recovery Board, DensDeck Prime, DensDeck StormX Prime, Securock or DEXcell®.

4. **InsulFoam IX –** A closed-cell lightweight expanded polystyrene (EPS) that meets ASTM C578, Type IX. Nominal density of 2.0 lbs/cubic ft (pcf) available in 4’ x 4’ or 4’ x 8’ sizes with thickness from 1/4” to 40”. Custom lengths, widths and tapered boards are available. May be specified beneath Versico Recovery Board, DensDeck Prime, DensDeck StormX Prime, Securock or DEXcell®.

5. **SecurShield HD EPS Composite –** InsulFoam expanded polystyrene (EPS) insulation laminated with a top surface of 1/2” thick SecurShield HD. Available in 4’ x 8’ boards with thickness from 1-1/2” to 7”.

6. **InsulLam –** InsulFoam expanded polystyrene (EPS) insulation laminated with a top surface of 7/16” or 5/8” thick Oriented Strand Board. Available in 4’ x 8’ boards with thickness from 1-1/2” to 7”.

7. **InsulFoam SP –** A closed-cell lightweight expanded polystyrene (EPS) with a factory-laminated fiber glass facer. Nominal density of 1.25 lbs/cubic ft (pcf), and meets ASTM C578, Type VIII. Designed for low-sloped roof applications that employ mechanically attached or ballasted membranes. Can also be used in Adhered systems using VersiGard QA / VersiGard Reinforced QA, VersiWeld TPO QA Membranes.

POLYISOCYANURATE INSULATIONS (ASTM C1289)						
Brand Name	**Board Size**	**Thickness**		**R-Value @40° F (5° C)**	**Minimum Compressive Strength (1)**	**Minimum Density**
		Inch	**cm**			
Versico VersiCore Polyisocyanurate **Versico VersiCore NH Polyisocyanurate** (Polyisocyanurate laminated to glass-reinforced felt (GRF)).	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/2” 1” 1-1/2" 2" 2-1/2" 3" 3-1/2” 4" 4-1/2”	1.3 2.5 3.8 5 6.25 7.5 8.75 10 11.2 5	2.8 5.7 8.6 11.4 14.4 17.4 20.5 23.6 26.8	Grade 2 20 psi Grade 3 25 psi	1.5 to 2.5 lbs/ft^3
Versico VersiCore Polyisocyanurate 12 Foot Boards (Polyisocyanurate laminated to glass-reinforced felt (GRF)).	4’ X 12’ (1.2m X 3.6m)	1.5” 1.75” 2” 2.2” 2.5” 2.6” 3” 3.3” 3.5”	3.8 4.37 5 5 5.5 6.25 6.5 7.5 8.25 8.75	8.6 10 11.4 12.54 14.4 14.82 17.1 18.81 23.6	Grade 2 20 psi Grade 3 25 psi	1.5 to 2.5 lbs/ft^3
Versico VersiCore Eco (Polyisocyanurate laminated to glass-reinforced felt (GRF)). 5% bio-based content	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	2.0” 2.5”	5 6.25	11.4 14.4	Grade 2 20 psi Grade 3 25 psi	1.5 to 2.5 lbs/ft^3
Versico VersiCore HD (High-density Polyisocyanurate laminated to glass-reinforced felt (GRF)).	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/2” 1” 1-1/2" 2" 2-1/2" 3" 3-1/2” 4" 4-1/2”	1.3 2.5 3.8 5 6.25 7.5 8.75 10 11.2 5	1.25 2.5 3.75 5.0 6.25 7.5 8.75 10.0 11.25	109 psi	-
Versico VersiCore Eco HD (High-density Polyisocyanurate laminated to glass-reinforced felt (GRF)).	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/2”	1.3	2.5	80 psi	-
SecurShield Polyisocyanurate (Polyisocyanurate laminated to a premium, coated glass fiber mat facer (CGF))	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/2” 1” 1-1/2" 2" 2-1/2" 3" 3-1/2” 4"	1.3 2.5 3.8 5 6.25 7.5 8.75 10	2.8 5.7 8.6 11.4 14.4 17.4 20.5 23.6	20 psi	1.5 to 2.5 lbs/ft^3
SecurShield NH Polyisocyanurate (Polyisocyanurate laminated to a premium, coated glass fiber mat facer (CGF)) Contains non-halogenated fire retardants.	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/2” 1” 1-1/2" 2" 2-1/2" 3" 3-1/2” 4"	1.3 2.5 3.8 5 6.25 7.5 8.75 10	2.8 5.7 8.6 11.4 14.4 17.4 20.5 23.6	20 psi	1.5 to 2.5 lbs/ft^3

POLYISOCYANURATE INSULATIONS (ASTM C1289)						
Brand Name	**Board Size**	**Thickness**		**R-Value @40° F (5° C)**	**Minimum Compressive Strength (1)**	**Minimum Density**
		Inch	**cm**			
SecurShield HD (High-density Polyisocyanurate laminated to a premium, coated glass fiber mat facer (CGF)) **Versico SecurShield HD Plus**	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	1/2”	1.3	2.5	109 psi	-
SecurShield HD Composite (High-density Polyisocyanurate laminated to a premium, coated glass fiber mat facer (CGF) w/ SecurShield)	47.5" x 95.5" (1206 mm x 2425 mm) and 47.5" x 47.5" (1206 mm x 1206 mm)	1.5” 1.8” 2.0” 2.5” 3.0” 3.5” 3.6” 4.0”	3.8 4.6 5.0 6.4 7.6 8.9 9.1 10.2	8.2 10.0 11.1 13.9 16.9 19.9 20.5 23.0	109 psi/20 psi	-
SecurShield Eco 5% bio-based content (Polyisocyanurate laminated to a premium, coated glass fiber mat facer (CGF))	4' X 4' (1.2 m X 1.2 m) or 4' X 8' (1.2 m X 2.4 m)	2.0” 2.5”	5 6.25	11.4 14.4	Grade 2 20 psi Grade 3 25 psi	1.5 to 2.5 lbs/ft^3
DuraFaceR Polyiso (Polyisocyanurate w/ OSB)	47.5” x 95.5” (1206 mm x 2425 mm)	1-1/2” 2” 2-1/2” 3” 4”	3.8 5.0 6.4 7.6 10.2	6.3 9.2 12.0 15.0 18.0 21.1	Grade 2 20 psi Grade 3 25 psi	-

Notes:
(1) Compressive strength at 10% deformation.
(2) R-Value based on 15 year time-weighted average Long-Term Thermal Resistance (LTTR), following standard CAN/ULC-S770, which has been adopted by PIMA (Polyisocyanurate Insulation Manufacturer’s Association).
(3) Tapered Boards available upon request.

B. POLYISOCYANURATE INSULATIONS

1. **Versico VersiCore Polyisocyanurate –** A foam core insulation board covered on both sides with a medium weight fiber-reinforced felt facer meeting ASTM C 1289, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4’ x 8’ standard size with a thickness from 1 to 4 inches. 4’ x 4’ tapered panels are also available.

2. **Versico VersiCore NH Polyisocyanurate -** A foam core insulation board covered on both sides with a glass-reinforced felt meeting ASTM C 1289, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4’ x 4’ and 4’ x 8’ standard size with a thickness from ½” to 4 inches. VersiCore NH contains zero halogenated flame retardants.

3. **Versico VersiCore Eco –** A rigid roof insulation panel with 5% ISCC-certified bio-attributed content composed of a closed-cell polyisocyanurate foam core bonded to glass-reinforced felt (GRF) facers, meeting ASTM C 1289, Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4’ x 8’ standard size with a thickness from 1 to 4 inches. 4’ x 4’ tapered panels are also available. UL and FM approved for direct application over steel decks.

4. **Versico VersiCore HD Polyisocyanurate** – A high-density, foam core insulation board bonded on each side to glass-reinforced felt, meeting ASTM C1289, Type II, Class 5, Grade 1 (109 psi). The product is available in 4’ x 4’ and 4’ x 8’ standard size in 1/2” thickness.

5. **Versico VersiCore Eco HD Polyisocyanurate** – A high-density, bio-based, foam core insulation board bonded on each side to glass-reinforced felt, meeting ASTM C1289, Type II, Class 5, Grade 1 (109 psi). The product is available in 4’ x 4’ and 4’ x 8’ standard size in 1/2” thickness.

6. **SecurShield Polyisocyanurate –** A foam core insulation board covered on both sides with a coated glass fiber mat facer meeting ASTM C 1289, Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4’ x 8’ standard size with a thickness from 1 to 4 inches. 4’ x 4’ tapered panels are also available. These flat board products feature a dark-colored coated-glass facer (CGF) on one side of the insulation board and a light-colored CGF on the other, labeled Ready Flash. Ready Flash Technology allows applicators to manage adhesive flash-off times by choosing between two different-colored facers on every board.

7. **SecurShield NH Polyisocyanurate -** A foam core insulation board covered on both sides with a coated glass fiber mat facer meeting ASTM C 1289, Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi). The product is available in 4’ x 4’ and 4’ x 8’ standard size with a thickness from ½ inch to 4 inches. SecurShield NH contains zero halogenated flame retardants.

8. **SecurShield HD Polyisocyanurate –** Composed of a high-density, closed-cell polyisocyanurate foam core laminate to a coated-glass facer (CGF) meeting ASTM 1289, Type II, Class 4, Grade 1 (109 psi). The product is available in 4’ x 4’ and 4’ x 8’ standard size in ½ inch thickness. Designed for use as a cover board.

9. **SecurShield HD Plus Polyisocyanurate –** Composed of a high-density, closed-cell polyisocyanurate foam core laminate to a coated-glass facer (CGF) meeting ASTM 1289, Type II, Class 4, Grade 1 (109 psi). The product is available in 4’ x 4’ and 4’ x 8’ standard size in ½ inch thickness. FM approved and designed for use as a cover board for fully adhered systems.

10. **SecurShield HD Composite Polyisocyanurate –** Composite insulation panel comprised of 1/2-inch high-density (109 psi max) Polyiso cover board laminated during the manufacturing process to SecurShield rigid Polyiso roof insulation meeting ASTM C1289 Type IV, Grade 2 (20 psi) or Grade 3 (25 psi). Available in 4’ x 8’ boards with thickness from 2” to 4.5”. 4’ x 4’ panels are also available.

11. **SecurShield Eco –** A rigid roof insulation panel with 5% ISCC-certified bio-attributed content composed of a closed-cell polyisocyanurate foam core bonded to high performance coated glass facers (CGF). ASTM C 1289, Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi), available in 4’ x 8’ standard size with a thickness from 1 to 4 inches. 4’ x 4’ tapered panels are also available. Ideal for use in adhered membrane systems. Achieves a UL Class A fire rating direct to combustible deck.

12. **DuraFaceR Polyisocyanurate Composite (OSB) –** Polyiso insulation bonded on the bottom side with a medium weight fiber-reinforced felt facer and laminated with a top surface of 7/16” or 5/8” thick Oriented Strand Board (OSB) meeting ASTM C1289, Type V, Grade 2 (20 psi) or Grade 3 (25 psi). Available in 4’ x 8’ boards with thickness from 1-1/2” to 4”.

XPS: EXTRUDED POLYSTYRENE INSULATIONS (supplied by Versico)						
Brand Name	**Board Size**	**Thickness**		**R-Value @ 40° F (5° C)**	**Minimum Compressive Strength (1)**	**Minimum Density (2)**
		Inch	**cm**			
Thermapink 18 (Extruded Polystyrene)	2' X 8' (.61 m X 2.4 m) or 4' X 8' (1.2 m X 2.4 m)	1" 1-1/2" 2" 2-1/2" 3"	2.5 3.8 5 6.4 7.6	5.00 7.50 10.00 12.50 15.00	18 psi (1.05 kg/cm^2)	1.35 pcf (22 kg/cu m)
		3/4" 1"	1.9 2.5	3.75 5.00	25 psi 1.76 kg/cm^2)	
Thermapink 25 (Extruded Polystyrene; ASTM C578, Type IV)	2' X 8' (.61 m X 2.4 m) or 4' X 8' (1.2 m X 2.4 m)	1” 1-1/2” 2” 3” 4”	2.5 3.8 5 7.6 10	5.4 8.1 10.8 16.2 21.6	25 psi	-
Foamular 400 (Extruded Polystyrene) For use primarily under concrete slab installations in freezer applications.	2' X 8' (.61 m X 2.4 m)	1" 1-1/2" 2" 2-1/2" 3" 3-1/2" 4"	2.5 3.8 5 6.4 7.6 8.9 10	5.00 7.50 10.00 12.50 15.00 17.50 20.00	40 psi (2.81 kg/cm^2)	1.8 pcf (29 kg/cu m)
Dow Styrofoam Deckmate Plus (Extruded Polystyrene)		2 2-1/2” 3” 4”	5 6.4 7.6 10	10 12.5 15 20	25 psi	-
Notes: (1) Value at yield or 5% deformation (10% for Thermapink 18 and 25), whichever occurs first. (2) The densities listed are minimum in accordance with ASTM C 578-87A.						

C. **XPS – EXTRUDED POLYSTYRENE INSULATIONS**

1. **Thermapink 18 Extruded Polystyrene**
2. **Thermapink 25 Extruded Polystyrene**
3. **Foamular 400 Extruded Polystyrene**
4. **Dow Styrofoam Deckmate Plus Extruded Polystyrene**

2.09 UNDERLAYMENT/COVER BOARDS

A. **Dens-Deck and Dens-Deck Prime (supplied by Versico)** – A moisture-resistant, glass mat gypsum board used as a thermal barrier and a cover board in conjunction with the various Versico roofing systems assemblies. Available in 1/4", 1/2" and 5/8" thick and are 4’ x 4’ or 4' x 8' boards. Refer to Technical Data Bulletin for physical properties and other technical information.

B. **DensDeck StormX Prime (supplied by Versico)** – a reinforced gypsum cover board with an enhanced, moisture-resistant core and coated glass mat facers on the top and bottom side. The top surface is pre-primed and provides excellent bond strength for adhered membrane for use as a cover board. DensDeck StormX Prime is extremely durable and is approved for use in assemblies meeting FM’s Very Severe Hail (VSH) Classification. Available in 5/8” thickness and 4’ x 4’ or 4’ x 8’ size boards.

C. **Securock® (supplied by Versico)** – A low permeable, water-resistant composition board used as thermal barriers and cover board in conjunction with the various Versico system assemblies. Available 1/4", 3/8", 1/2" and 5/8" thick in 4’ x 4’ or 4' x 8' boards. Refer to Technical Data Bulletin for physical properties and other technical information.

D. **SecurShield HD** - a rigid insulation panel composed of a high-density (109 psi max), closed-cell polyisocyanurate foam core laminated to coated-glass fiber-mat facer meeting ASTM C1289, Type II, Class 4, Grade 1, for use as a cover board or recover board. Available 1/2” thick 4’ x 4’ (5.5 lbs) and 4’ x 8’ (11 lbs) panels with an R-value of 2.5.

Features Ready Flash, a dark-colored coated-glass facer (CGF) on one side of the insulation board and a light-colored CGF on the other. Ready Flash Technology allows applicators to manage adhesive flash-off times by choosing between two different colored facers on every board.

E. **SecurShield HD Eco** – A rigid roof insulation panel with 5% ISCC-certified bio-attributed content composed of ½" high-density, closed-cell polyisocyanurate foam core bonded to a premium performance coated glass facer (CGF) specifically designed for use as a cover board, meeting ASTM C1289, Type II, Class 4, Grade 1. Provides 5 times the R-value at one-fifth the weight of traditional gypsum cover boards. Achieves a UL Class A fire rating direct to combustible deck. Available in 1/2” thick, 4’ x 4’ (5.5 lbs) and 4’ x 8’ (11 lbs) panels with an R-value of 2.5.

F. **SecurShield HD Plus** - a rigid insulation panel composed of a high-density (109 psi max), closed-cell polyisocyanurate foam core laminated to premium-performance coated-glass fiber-mat facer, meeting ASTM C1289, Type II, Class 4, Grade 1. Specifically designed for use as a cover board or recover board. Available 1/2” thick 4’ x 4’ (6.5 lbs) and 4’ x 8’ panel (13 lbs) with an R-value of 2.5. Meets an FM 1-90 using only 8 fasteners per 4’ x 8’ board.

G. **VersiCore HD** – a closed-cell polyisocyanurate foam core insulation board covered on both sides with glass-reinforced felt (GRF) facer meeting ASTM C 1289, Type II, Class 1, Grade 3. The product is available in 4’ x 4’ and 4’ x 8’ standard sizes with a thickness of one-half inch with an R-value of 2.5. ASTM C1289, Type II, Class 1, Grade 3.

H. **VersiCore HD Eco** – A rigid-roof insulation cover board with 5% ISCC-certified bio-attributed content composed of a high-density closed-cell polyisocyanurate foam core bonded on each side to glass-reinforced felt (GRF), meeting ASTM C1289, Type II, Class 1, Grade 3. UL and FM approved for direct application over steel decks. Available in 1/2” thick, 4’ x 4’ and 4’ x 8’ panels with an R-value of 2.5. Suitable for both re-roofing and new construction applications, VersiCore HD is specifically designed for use as a cover board in mechanically attached single-ply systems only. VersiCore HD delivers an R-value of 2.5.

I. **DuraStorm VSH Cover Board –** an engineered composite building material made from a proprietary blend of plastic and cellulose fiber sourced from post-industrial and post-consumer waste streams. DuraStorm VSH is a durable, extremely moisture and mold resistant building material with a core that does not disintegrate or delaminate in the presence of water. Available in 1/2” thick and 4’ x 8’ size board.

J. **Versico Recovery Board** - A 1/2” or 1” thick high-density wood fiberboard with an asphalt coated facer for use as a cover board or recover board. Available 1/2” or 1” thick and 4’ x 4’ or 4’ x 8’ size boards. When used in reroof / no tear-off projects, warranty is limited to 15-year projects.

K. **R-Tech FanFold Recover Board –** Closed-cell lightweight expanded polystyrene (EPS) with polymeric laminated faces which meets ASTM C 578, while metallic side used with EPDM. Available in thicknesses of 3/8” to 3/4” with coverage 4’ x 50’ (2 squares). 4’ x 8’ units are also available.

L. **HP Protection Mat –** A nominal 6-oz per square yard UV resistant polypropylene needle punched fabric used either above the membrane as a slip-sheet for ballast or as an underlayment to the membrane. Available 15' x 300' roll (4500 square foot) weighing 0.06 lbs per square foot.

M. **DEXcell® Glass Mat** – A mold & mildew resistant, gypsum substrate board with coated fiberglass facers, used for thermal protection and acoustical enhancement of roof systems. May be used as a substrate for a vapor retarder and /or the continuous substrate for the application of commercial roofing applications. Available in 1/4", 1/2" and 5/8" thicknesses in 4' x 8' boards.

N. **DEXcell FA™ Glass Mat** - A mold & mildew resistant, gypsum substrate board with heavy duty, coated fiberglass facers, used for thermal protection and acoustical enhancement of roof systems. May be used as a substrate for a vapor retarder and /or the continuous substrate for the application of commercial roofing applications. The precoated, fiberglass facers are designed to increase adhesive coverage and enhance performance of the bond strength of the system. Available in 1/4", 1/2" and 5/8" thicknesses in 4' x 4' and 4' x 8' boards.

O. **DEXcell® Cement Roof Board** – A mold & mildew resistant, Portland Cement, lightweight aggregate roof board with heavy-duty fiberglass mesh facers used as a substrate board, thermal barrier and cover board for commercial roofing applications. Available in 7/16" and 5/8" thicknesses in 4' x 4' and 4' x 8' boards.

P. **DEXcell FA VSH®** – A reinforced gypsum panel with enhanced moisture resistant gypsum core and heavy duty coated glass facers used as a substrate board, thermal barrier and cover board for commercial roofing applications, approved for use in single-ply and multi-ply assemblies meeting FM Very Severe Hail rating. Available in 5/8" thickness in 4' x 4' and 4' x 8' boards.

2.10 VAPOR/AIR RETARDER PRODUCTS AND ACCESSORIES

A. **Versico VapAir Seal 725TR Air and Vapor Barrier** - A 40-mil thick composite consisting of 35-mil self-adhering rubberized asphalt membrane laminated to a 5-mil UV resistant poly film with an anti-skid surface which is fully compatible with Flexible DASH Adhesive. 725TR can also function as a temporary roof for up to 120 days. Available in rolls 39" wide by 100' long (325 square feet).

B. **Versico VapAir Seal MD Air and Vapor Barrier** – a reinforced composite aluminum foil with self-adhesive SBS backing and removable poly release film. Used for direct application over metal decks. Available in rolls 42.5" wide by 131.23' long (460 square feet).

C. **CAV-GRIP 3V Low-VOC Aerosol Contact Adhesive/Primer:** a low-VOC, methylene chloride-free adhesive that can be used for a variety of applications including: enhancing the bond between Versico's VapAir Seal 725TR and various substrates. Coverage rate is approximately 2,000-2,500 sq. ft. per #40 cylinder and 4,000-5,000 sq. ft. per #85 cylinder as a primer, in a single-sided application.

D. **CCW-702 Primer and 702LV Primer (Low-VOC)** - A single component, solvent based, high-tack primer used to provide maximum adhesion between Versico 725TR Air and Vapor Barrier and an approved substrate. Applied by spray or long nap roller with a coverage rating ranging from approximately 300 to 350 square feet per gallon on smooth finishes (i.e., concrete) to 75 square feet per gallon on porous surfaces (i.e., DensDeck Prime gypsum board). Available in 5-gallon containers. CCW-702LV Primer contains less than 250g/L VOCs and meets South Coast Air Quality Management District (SCAQMD) and Leadership in Energy and Environmental Design (LEED) Requirements for Volatile Organic Compounds.

E. **CCW-702WB** – a high-tack, water-based contact adhesive for promoting adhesion of Versico air/vapor barrier membranes and an approved substrate (i.e., concrete, DensDeck Prime and **Securock). Applied by roller, brush or spray with an application rate of approximately 200 sq. ft. per** gallon. Available in 5-gallon containers. CCW-702WB Primer contains 57g/L VOCs and meets South Coast Air Quality Management District (SCAQMD) and Leadership in Energy and Environmental Design (LEED) Requirements for Volatile Organic Compounds.

F. **Water Cut-Off Mastic** – Used as a mastic to prevent moisture vapor migration at junctures where vapor seals are required. This product can also be used for compression terminations and beneath conventional metal edging (at a coverage rate of approximately 10' per tube or 100' per gallon).

2.11 EDGINGS AND TERMINATIONS

Products listed below can be used with any of the available Versico Roofing Systems. Refer to the applicable Versico details and installation instruction manuals for specific installation criteria.

A. **Fascia Products**

1. **VersiTrim Snap-on Fascia:** A two-part snap-on assembly including a base plate and decorative snap-on cover. Includes a 20-gauge retainer base plate with pre-slotted holes for fasteners. The fascia is available in 0.040” or .050” aluminum with mill-finish, anodized-finish or Kynar ® 500 finish or 22- or 24-gauge galvanized steel with Kynar ® 500 finish or acrylic coated galvalume finish. Available in a variety of standard colors. Custom colors are available upon request. Available in sizes from 3-1/2” to 12-1/4” face heights. ANSI/SPRI/FM-4435 ES-1 certified.

2. **VersiTrim One Fascia:** A snap-on edge system consisting of a 20-gauge galvanized steel formed rail with pre-punched slots, a 6” stainless steel spring clip. corrosion resistant fasteners with a 24-gauge galvanized steel or 0.040”, 0.050” or 0.063” Kynar® finished aluminum fascia cover. Available in a variety of standard colors. Custom colors are available upon request. Available in 12' standard lengths with face sizes of 4”, 5”, 6” and 8”. ANSI/SPRI/FM-4435 ES-1 certified.

3. **VersiTrim Snap-On Canted Fascia:** A snap-on edge system consisting of a 24-gauge galvanized metal water dam with pre-punched holes, a 24-gauge stainless steel spring clip and a snap-on cover. The cover is available in 0.040”, 0.050” or 0.063” thick mill-finish, anodized, or Kynar® 500 finish aluminum or 22- or 24-gauge steel with Kynar® 500 finish. The fascia is available in a variety of standard colors. Custom colors are available upon request. Available in 12' standard lengths and heights varying from 5" to 12-1/2". ANSI/SPRI/FM-4435 ES-1 certified.

4. **VersiTrim Crimp-On Canted Fascia:** A crimp-on edge system featuring a 24-gauge, galvanized metal water dam with pre-punched holes, a 24-gauge stainless steel spring clip and a snap-on cover. The fascia cover is available in 0.040”, 0.050” or 0.063” thick mill-finish, anodized, or Kynar® 500 finish aluminum or 22- or 24-gauge steel with Kynar® 500 finish. The fascia is available in a variety of standard colors. Custom colors are available upon request. Available in 12' standard lengths and heights varying from 5-1/4" to 12-3/4". ANSI/SPRI/FM-4435 ES-1 certified.

5. **VersiTrim EX Snap-On Fascia: An** anchor bar roof edge fascia system consisting of heavy 0.100" thick extruded aluminum bar, corrosion resistant stainless-steel fasteners and snap-on fascia cover used with Adhered, Mechanically Attached assemblies. The fascia cover is available in 0.040”, 0.050” or 0.063” thick mill-finish, anodized, or Kynar® 500 finish aluminum or 22- or 24-gauge steel with Kynar® 500 finish. The fascia is available in a variety of standard colors. Custom colors are available upon request. Available in 12' standard lengths and 4”, 5-1/2”, 7” and 8-1/2” heights. ANSI/SPRI/FM-4435 ES-1 certified.

B. **Coping Products**

1. **VersiTrim Snap-on Coping:** A snap-on coping system that incorporates 20-gauge anchor cleats with pre-slotted holes, a concealed joint cover and 10' or 12' continuous sections of coping cap consisting of 40, 50 or 63-mil thick clear and colored anodized, and Kynar 500 finish or 24-gauge steel with Kynar® 500 finish. The coping cap is available in a variety of standard colors. Custom colors are available upon request. Also available in a variety of widths including custom pieces such as tees, crosses, radius copings, etc. ANSI/SPRI/FM-4435 ES-1 certified.

2. **VersiTrim Snap-on Gold Coping:** A snap-on coping system that incorporates 20-gauge, galvanized steel anchor clips and 12”, 20-gauge, factory-applied stainless-steel springs. Available with 22- and 24-gauge steel with Kynar® 500 finish or 0.040”, 0.050” and 0.063” mill-finish, anodized or Kynar® 500 coated aluminum. A variety of standard colors are available. Custom colors are available upon request. ANSI/SPRI/FM-4435 ES-1 certified.

3. **VersiTrim CF Snap-on Coping:** A snap-on coping system that incorporates 20-gauge, galvanized steel anchor cleats with pre-slotted holes, a concealed joint cover and 0.040”, 0.050” and 0.063” thick mill-finish, anodized or Kynar® 500 finish or 22- or 24-gauge Kynar 500® coated steel. The coping cap is available in a variety of colors and widths, including custom pieces such as tees, crosses, and radius copings. Custom colors are available upon request. Available in standard 12’ lengths with 6” to 16” wall heights. ANSI/SPRI/FM-4435 ES-1 certified.

   Also available in VersiTrim CF Gold Coping with 16-gauge anchor cleats for added performance.

4. **VersiTrim One Coping:** A mechanically fastened coping system consisting of a 22-gauge retainer bar (face side only), corrosion resistant fasteners and a .040”, .050” or .063” mill-finish, anodized or Kynar® 500 coated aluminum and 22- or 24-gauge, Kynar® 500 coated steel coping cover. A variety of standard colors are available. Custom colors are available upon request. Available for wall thicknesses up to 12”. ANSI/SPRI/FM-4435 ES-1 certified.

5. **VersiTrim Continuous Cleat Coping:** An engineered coping system, featuring continuous, 20-gauge galvanized steel cleats on both the inside and outside face of the parapet. Available with 0.040”, 0.050” and

0.063” mill-finish, anodized or Kynar® 500 coated aluminum and 22- and 24-gauge Kynar® 500 coated steel. A variety of standard colors are available. Custom colors are available upon request. Custom fabricated for specific project requirements. Cleat available in standard 12’ lengths. ANSI/SPRI/FM 4435/ES-1 Certified. Miami-Dade approved.

C. **Water Control Products**

1. **VersiTrim Gravel Stop:** A two-piece assembly that consists of a continuous 22-gauge steel cleat with pre-punched holes and snap-on gravel stop cover. The gravel cover is available in 0.040”, 0.050”, and 0.063” mill-finish, anodized or Kynar® 500 coated aluminum or 22- and 24-gauge steel with galvanized Kynar® 500 coated or acrylic coated galvalume finish. Available in a variety of standard colors. Custom colors are available upon request. Available in 12' standard lengths with 3” to 10” heights and 1” and 3” flange widths. ANSI/SPRI/FM-4435 ES-1 Certified.

2. **VersiTrim Drip Edge:** Designed for use on Adhered and Mechanically Fastened Roofing Systems. Includes a 22-gauge continuous 12' pre-punched, 90-degree angle cleat and 10’ or 12' long fascia sections, including concealed joint covers. Available in 0.032” or 0.040” mill-finish, anodized or Kynar® 500 coated aluminum or 24-gauge Kynar 500 coated steel. A variety of standard colors are available. Custom colors are available upon request. ANSI/SPRI/FM-4435 ES-1 certified.

3. **VersiTrim EX Drip Edge:** Featuring an extruded aluminum anchor bar with pre-punched holes for roof membrane securement. The cover is manufactured from 0.040” aluminum with mill-finish, anodized or Kynar® 500 finish or 24-gauge steel with Kynar® 500 finish. Available in standard 12’ lengths with sizes ranging from 3” to 7.5” face heights. A variety of standard colors are available. Custom colors are available upon request. ANSI/SPRI/FM 4435/ES-1 certified. Miami-Dade approved.

4. **VersiTrim WR Gutter:** system incorporates 1” wide extruded internal gutter brackets and aluminum or galvanized steel gutter. Available in 0.040”, 0.050 or 0.063” aluminum, and 22-gauge or 24-gauge with Kynar® 500 finish. Gutter support brackets are extruded aluminum. Available in box style, chamfer style, and offset profiles. ANSI/SPRI/FM 4435/ES-1 certified.

5. **VersiGard Ballast Retaining Bar:** A ballast retaining perimeter securement system comprised of a slotted (4" on center) extruded mil aluminum retention bar with an integrated compression fastening strip. 1-1/2" stainless steel fasteners with Neoprene washers are provided for stable securement.

6. **Termination Bar:** A 1" wide and 98-mil thick extruded aluminum bar pre-punched 6" on center which incorporates a sealant ledge to support Lap Sealant and provide increased stability for membrane terminations.

7. **SureTite Snap-On Fascia Cleat:** Prefabricated, 22-gauge, Galvalume steel, continuous, snap-on cleat with pre-punched holes. Used for use on single ply roofing applications when Versico metal flat sheets are used to shop fabricate the fascia or coping cover. Available in 12’ standard lengths and 4-1/4” to 8-1/4” face heights. ES-1 certified.

8. **SureTite Drip Edge Cleat:** Prefabricated, 22-gauge, Galvalume steel, continuous, cleat with pre-punched holes. Used for use on single ply roofing applications when Versico metal flat sheets are used to shop fabricate the drip edge, gravel stop or flat coping cover. Available in 12’ standard lengths and 3”, 5” 6” and 7” heights. ES-1 certified.

D. Other Versico Metal Edgings / Copings suitable for use with roofing system included in the section, can be found in the Specification Supplement G-10 Metal Edging.

2.12 OTHER VERSICO ACCESSORIES

A. **VapAir Seal FLASHING FOAM –** A low-pressure, two-component polyurethane foam system, specially formulated for flame retardancy utilizing a non-flammable blowing agent and conforming to the requirements of ASTM E84 as a Class B system; used to seal penetrations and reduce air leakage.

B. **HP Protective Mat –** A nominal 6-ounce per square yard, black, UV resistant, polypropylene fabric for use as an underlayment for crushed stone or pavers and a puncture protection mat for various Versico Roofing Systems. Available in rolls 15' wide by 300' long.

C. **VersiGard/VersiGard White Pressure-Sensitive EPDM Walkway Pads** – A black or white on black, molded walkway pads with Factory-Applied QA Seam Tape used to provide protection for areas of EPDM membrane that are exposed to regular rooftop maintenance.

D. **VersiWeld TPO Walkway Rolls –** Consists of recycled VersiWeld Membrane offering superior tear, puncture and weather resistance and designed to protect VersiWeld membrane in areas exposed to repetitive foot traffic or other hazards. Walkway material may be heat welded to VersiWeld membrane using an automated heat welder or hand held heat welder. Walkway Rolls are 30" wide by 50' long and are nominal 120-mils thick. Available in white only.

E. **VersiFlex PVC Walkway Rolls** – Designed to protect VersiFlex PVC and KEE HP membranes in areas exposed to repetitive foot traffic and other hazards. Walkway material may be heat welded to VersiFlex membrane using an automated heat welder or hand held heat welder. Walkway rolls are 36” wide by 60’ long and are nominal 80-mils thick. Available in Gray only.

F. **Rubber Pavers –** A 2' by 2' by 2" thick rubber paver weighing approximately 24 pounds per unit, 6 pounds per square foot manufactured from recycled rubber, which provides a resilient, shock absorbing, weather resistant surface. Designed primarily for use as a walkway or on terrace areas offering a unique, environmentally sound advantage over concrete pavers. Features include freeze/thaw stability, bi-directional drainage and no breakage concerns. Available in black and terra cotta.

PART III - EXECUTION

3.01 GENERAL

A. Coordinate work with other trades to reduce the possibility of damage to partially completed roof sections or the below slab thermal protection system caused by construction traffic.

B. Do not proceed with installation of below slab components until the mud slab has fully cured and is suitable for placement of the vapor barrier and other insulating material.

C. Prior to commencement of the work, ensure transition details (vapor seal to insulated wall panel) can perform adequately. If necessary, a prototype should be constructed to demonstrate proper application procedures.

D. When possible on multiple level roofs, begin the work on the highest level to avoid or minimize construction traffic on completed roof sections.

E. On projects at high altitudes (6,000' and above), rapid flash off (drying) of Bonding Adhesive and Splicing Cement will occur due to low atmospheric pressure.

3.02 ROOF DECK CRITERIA

A. Proper decking shall be provided by the building owner. The building owner or its designated representative must ensure that the building structure is investigated by a registered engineer to assure its ability to withstand the total weight of the specified roofing system, as well as construction loads and live loads, in accordance with all applicable codes. The specifier must also designate the maximum allowable weight and location for material loading and storage on the roof.

B. Withdrawal resistance tests are strongly suggested to determine the suitability of a roof deck. For questionable pullouts refer to the applicable Adhered or Mechanically Attached Roofing System specification.

C. Acceptable roof decks are structural concrete (3000 psi or greater), 1" thick wood plank or 15/32" thick CDX plywood, or steel (22 gauge or heavier). Steel decks of lesser gauge require pullouts to be evaluated and a heavier fastening density may be required.

D. On reroofing projects, core cuts should be taken and the roof must be investigated to determine if the existing components could remain and to verify the roof deck is structurally suitable to receive the roofing system.

E. Refer to Versico published specifications for other roof deck requirements dictated by the type of roof assembly to be installed.

3.03 SUBSTRATE PREPARATION

Defects in the substrate surface must be reported and documented to the specifier, general contractor and building owner for assessment. The Versico Authorized Roofing Contractor shall not proceed with installation unless defects are corrected.

A. **On retrofit - recover projects**, cut and remove wet insulation, as identified by the specifier, and fill all voids with new insulation so it is relatively flush (+/- 1/4") with the existing surface.

1. When installing this roofing system over an existing gravel surfaced built-up roof, loose gravel must be removed. Power brooming is recommended by Versico to remove the loose gravel, which may trap moisture. Any uneven areas of the substrate must be leveled to prevent insulation from bridging.

2. When installing this roofing system over an existing smooth surfaced modified bitumen, EPDM membrane shall be positioned with the length of sheets parallel to modified bitumen field splices. At end laps or other locations where EPDM splices intersect modified bitumen field seams, Quick-Applied "T" Joint Covers or 6" wide Quick Applied Uncured EPDM Flashing must be applied over intersections.

B. **For all projects** (new or retrofit), the substrate must be relatively even without noticeable high spots or depressions. Accumulated water, ice or snow must be removed to prevent the absorption of moisture in the new roofing components and roofing system.

C. Prior to placement of new insulation:

1. Clear the substrate of debris and foreign material that may be harmful to the roofing system. Fill any gaps in the substrate with high-rise foam to ensure an airtight seal.

2. All boards shall be tightly butted together. Stop insulation approximately 1/2" away from walls and penetrations to allow for adequate application of expandable foam.

3. Where the steel deck flutes are perpendicular to the perimeter wall, fill the flutes 12" away from the wall with spray foam insulation.

3.04 VAPOR BARRIER/VAPOR SEAL INSTALLATION

The primary concern in the design of a low-temperature facility is the vapor retarder system, which should be as close to 100% effective as is practical. The success or failure of an insulation envelope is due entirely to the effectiveness of the vapor retarder system in preventing water vapor transmission into and through the insulation.

A. **Roofing Vapor Barrier**

1. In cold storage and freezer facilities the moisture drive is generally downward where the roofing membrane serves as a vapor barrier.

2. In new construction, when working in colder temperatures, curing of concrete floors and the use of propane heaters to accelerate dehydration will cause construction-generated moisture to be driven upward into the roofing assembly due to the lack of ventilation. In this case, the use of a vapor retarder/barrier beneath the roofing insulation is strongly recommended to reduce the potential for condensation and the possible phenomenon of frozen blocks of insulation that may occur during temperature pull down.

3. If a vapor retarder is specified to safeguard against construction generated moisture, Versico VapAir Seal 725TR or VapAir Seal MD Air and Vapor Barrier may be used. Follow installation criteria outlined in Paragraph 3.04.A.

B. **Vapor Seal Transition at Roof Deck**

A continuous vapor seal is essential around roof edges, parapets, roof-to-wall transitions, and directly above interior dividers/partitions separating between cold and warmer controlled environments.

1. Where applicable, ensure the insulated wall panel cap is set in Water Cut-Off Mastic and secured to the wall panel at 6" on center maximum.

2. Fill panel lows with trowel-grade polyurethane sealant to achieve a level, smooth surface approximately 4" to 6" from the top of the panel.

3. Secure cured membrane flashing through the area of the panel that was leveled using generous application of Water Cut-Off Mastic and the Termination Bar fastened to achieve constant compression against the panel.

4. The transition vapor seal can be completed by turning the cured flashing over the roofing membrane setting each layer in generous beads of Water Cut-Off Mastic as outlined in the applicable Versico detail.

5. Refer to applicable Cold Storage (CS) Details for alternative methods by which a vapor seal can be achieved.

3.05 INSTALLATION OF WOOD NAILERS

A. Install wood nailers where required for edging, coping, etc.

B. For minimum requirements, follow the Factory Mutual Loss Prevention Data Bulletin 1-49 and ensure an uninterrupted vapor seal where required.

3.06 INSULATION INSTALLATION

A. **Acceptable Insulation**

In addition to insulations identified in individual roofing system specifications, the products listed below offer more economical options suited for multi-layer applications commonly associated with refrigerated assemblies.

1. **Adhered Roofing Systems** – The membrane may be adhered directly to Versico VersiCore or SecurShield Polyisocyanurate.

   Direct application over SecurShield Polyisocyanurate can provide greater uplift resistance eliminating the need for insulation overlayment of DensDeck, DensDeck Prime, DensDeck StormX Prime, Securock, DEXCell, DuraFaceR, StormX Prime or Versico Recovery Board.

   Note: Refer to the Versico Code Approval Guide for fire rated assemblies using SecurShield Polyisocyanurate over wood decks.

2. **Ballasted Roofing Systems** – The membrane may be installed over Versico VersiCore Polyisocyanurate or EPS Insulations.

3. **Mechanically Attached Roofing Systems**

   a. In addition to Versico Polyisocyanurate, white TPO membrane can be installed directly over Versico Insulfoam EPS SP.

   b. In addition to Versico Polyisocyanurate, if the use of expanded polystyrene (unfaced) is specified, the insulation must be overlaid with Versico Recovery Board or DensDeck.

Note: In projects where Factory Mutual (FM) compliance is required, a thermal barrier (gypsum board) will be required under EPS insulation.

B. **Insulation Thermal Efficiency**

1. The R-value of insulation required varies with the temperature held in the refrigerated space and the conditions surrounding the room.

2. The thermal efficiency for refrigerated facilities of the same capacity vary widely. Many factors, including building design, indoor and outdoor temperatures, and especially the type and flow of goods expected and the daily freezing capacity, contribute to the refrigeration load.

3. Heat infiltration load varies greatly with the size of the refrigerated area, number of openings to warm areas, protection of openings, traffic through openings, and cold and warm air temperatures and humidities. Calculation should be based on experience, especially when most of the refrigeration load occurs during daytime operations.

4. The following table shows recommended R-values for different types of facilities. The range in R-values is due to variations in energy cost, insulation materials, and climatic conditions. For more exact values, consult a designer and/or insulation supplier. The required R-value shall be determined by the designer but shall not be less than that shown.

Recommended Insulation R-Values				
Type of Facility	**Temperature Range, °F**	**Thermal Resistance *R*, °F 3 ft² 3 h/Btu**		
		Floors	**Walls**	**Roofs**
Coolers[1]	40 to 60	10 (Perimeter insulation only)	24 to 30	30 to 36
Receiving/Shipping & Coolers	35 to 45	10 (Perimeter insulation only)	24 to 33	33 to 39
Chill Coolers[1]	25 to 35	25 to 30	25 to 30	36 to 42
Holding Freezer	0 to -20	34 to 40	42 to 48	42 to 48
Blast Freezers[2]	-20 to -40	34 to 40	48 to 52	48 to 51
Blast Freezers[2]	-40 to -50	34 to 40	48 to 52	54 to 60

Note: Because of the wide range in the cost of energy and the cost of insulation materials based on thermal performance, a recommended R-value is given as a guide in each of the respective areas of construction. For more exact values, consult a designer and/or insulation supplier.

[1] If a cooler has the possibility of being converted to a freezer in the future, the owner should consider insulating the facility with the higher R-values from the freezer section.

[2] R-values shown are for a blast freezer built within an unconditioned space.

C. **Insulation Placement and Attachment**

1. Regardless of the roofing assembly, insulation shall be installed in multiple layers with staggered joints. All boards shall be tightly butted together. Stop insulation approximately 1/2" away from walls and penetrations to allow for adequate application of expandable foam.

   Efforts shall be made so the top layer of insulation is at least 2" thick in order to reduce the number of fasteners without jeopardizing the performance of the roofing assembly.

2. Where the steel deck flutes are perpendicular to the perimeter wall, fill the flutes 12" away from the wall with spray foam insulation.

3. For Ballasted Roofing Systems, the insulation may be loose laid in accordance with the published Versico specification. If securement is needed, use either Flexible DASH Adhesive or beads of adhesive; mechanical fastening of insulation is not permitted.

4. **Adhered Roofing Systems**

   a. Mechanically fasten insulation at the corners and perimeter with 1 fastener and plate per every 2 square feet of roof area. Insulation in the field of the roof shall be fastened with 1 fastener and plate per every 4 square feet of roof area.

      Notes: A lesser fastening density may be approved depending on specific project conditions.

      FM insured projects require compliance with FM 1-29. Consult local FM office for required fastening enhancements.

   b. To reduce thermal bridging, a **full spray of Flexible DASH Adhesive** may be used to attach individual insulation layers or adhere the top layer to a mechanically fastened bottom layer.

   c. As an option to the full spray, **beads of adhesive** shall be spaced 4" o.c. at the corners of the roof, 6" o.c. at the perimeter of the roof, and 12" o.c. over the field of the roof.

5. **Mechanically Attached Roofing Systems**

   Mechanically fasten insulation with 1 fastener and plate per every 4 square feet of roof area.

6. Refer to Part II for applicable products and fastening components for proper securement of insulation.

Note: The width of the roof perimeters and corners shall be 0.4 times the building height or 0.1 times the building's lesser plan dimension, whichever is smaller.

3.07 MEMBRANE PLACEMENT AND ATTACHMENT

A. **General**

Position membrane without stretching and allow to relax approximately 30 minutes prior to securement at angle change where applicable or attachment to the substrate.

1. **Adhered Roofing Systems** – refer to the individual Adhered Roofing System specification (EPDM, EPDM QA, TPO, TPO QA, PVC, KEE HP or VersiFleece) for applicable installation procedures and enhancements required for extended wind speed coverage.

2. **Ballasted Roofing Systems** – the membrane shall be loose laid and installed with acceptable ballast (stone or concrete pavers) in accordance with the American National Standards Institute, ANSI/SPRI RP-4 (current edition) Wind Design Guide for Ballasted Single-Ply Roofing Systems.

3. **Mechanically Attached Roofing Systems** – refer to the individual Mechanically Fastened Roofing System specification (EPDM, TPO, PVC and KEE HP) for applicable installation procedures and enhancements required for extended wind speed coverage.

B. Details and installation procedures for any of the assemblies mentioned in this specification can be found in the Versico Application specification categorized by roofing system type.

3.08 FLASHING

A. To ensure a continuous vapor seal and reduce or eliminate condensation, all roof penetrations through the refrigerated facility (coolers/freezers) must be insulated in accordance with ASHRAE Refrigeration Handbook, chapter 13.

B. For specific flashing details, the Versico CS (Cold Storage) Details can be referenced. Step-by-step flashing procedures are also outlined in the applicable Versico roofing system specification and included with the Versico Universal Details.

C. Project details may be submitted to Versico for review to clarify flashing methods and products used prior to installation.

Versico Roofing Systems
P. O. Box 1289
Carlisle, PA 17013
800-992-7663
http://www.Versico.com

This specification represents the applicable information available at the time of its publication. Owners, specifiers and Versico authorized roofing contractors should consult Versico or their Versico Manufacturer's Representative for any information that has subsequently been made available.

Review the appropriate Versico warranty for specific warranty coverage, terms, conditions and limitations.

Cold Storage Envelope

VersiGard® / VersiGard White / VersiWeld® / VersiFlex™

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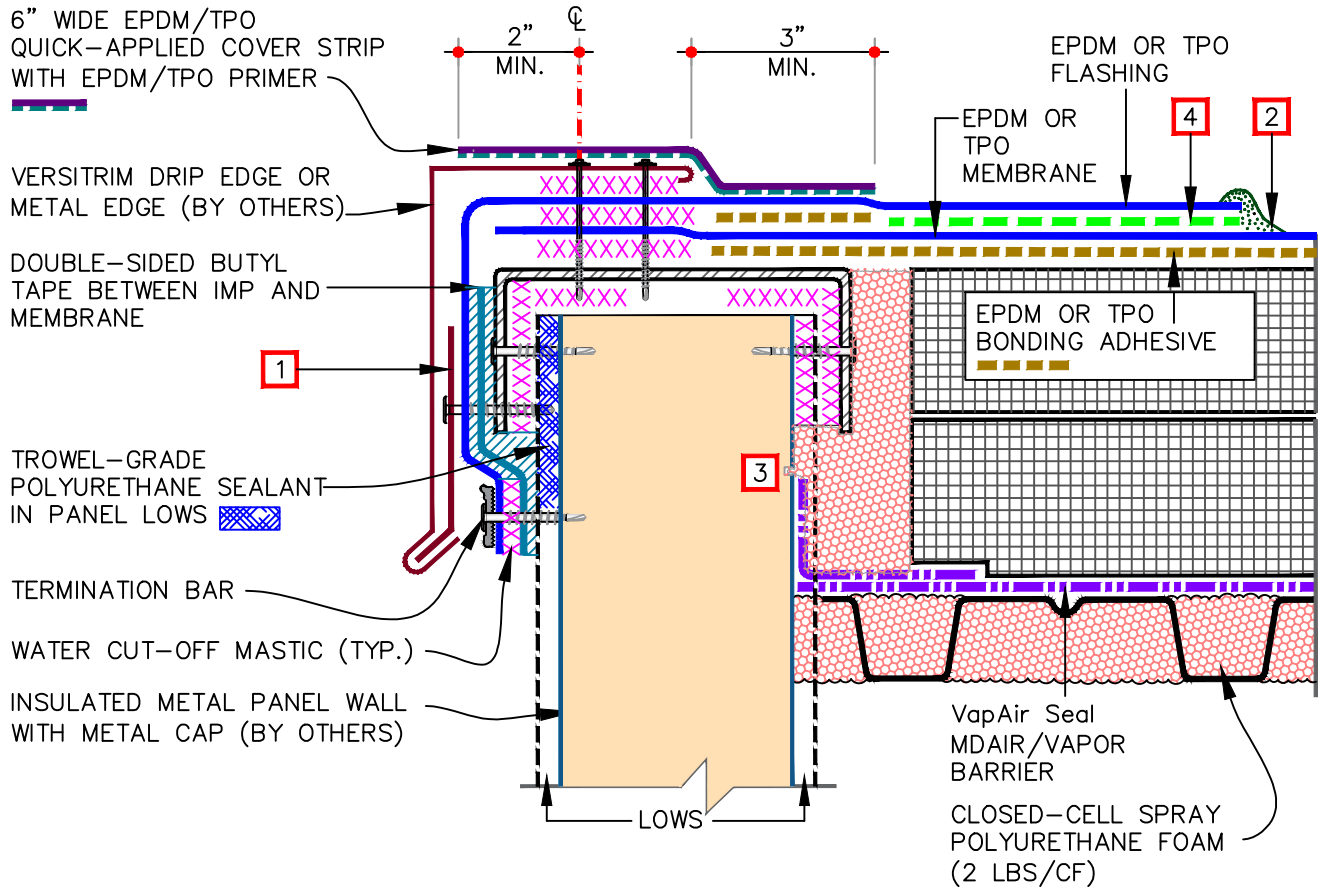
February 2026



NOTES:

1. CONTINUOUS METAL CLEAT, 22 GAUGE. FASTEN CLEAT WITH #8 X 3/4" TEK SCREWS @ 6" O.C. TO METAL CAP.
2. 1/8" CUT-EDGE SEALANT FOR TPO ONLY.
3. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.
4. 3" OR 6" QA SEAM TAPE WITH EPDM PRIMER FOR EPDM OR 1-1/2" MIN. HOT AIR WELD FOR TPO.

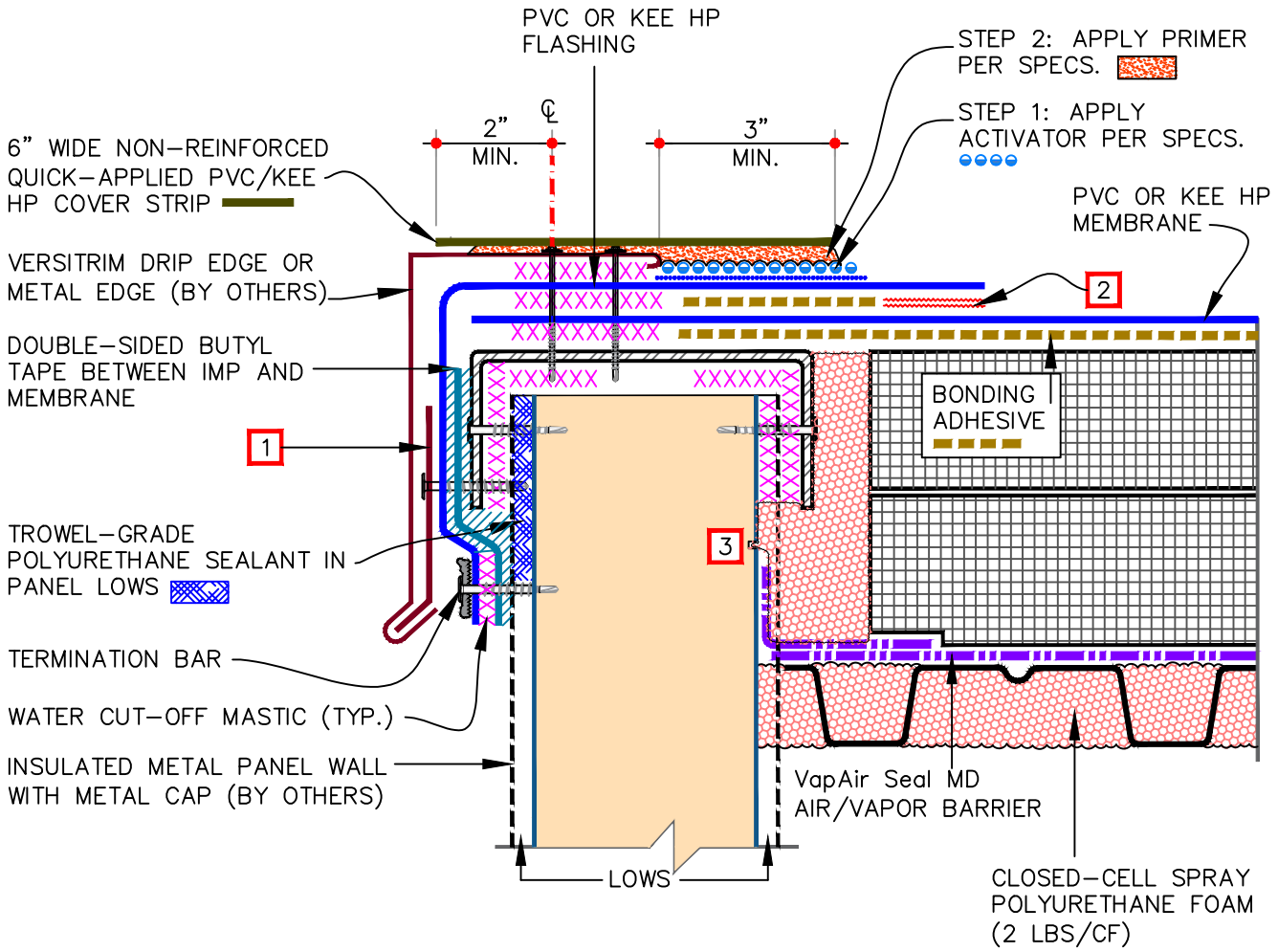
VERSICO ROOFING SYSTEMS

METAL DRIP EDGE-IMP (INSULATED METAL PANEL) WALL - EPDM/TPO

MAXIMUM WARRANTY: 20 YEARS

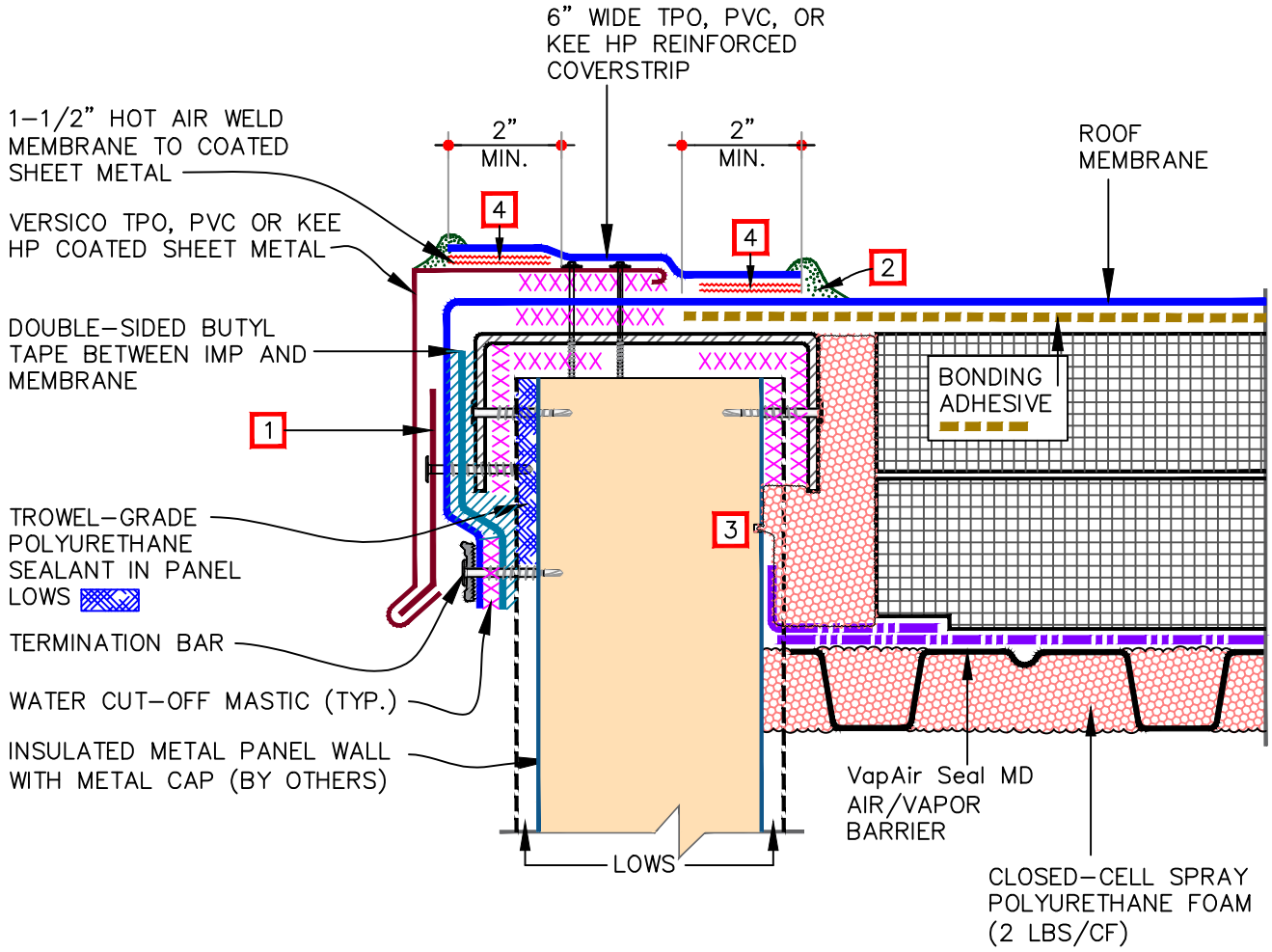
ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-1.1



NOTES:

1. CONTINUOUS METAL CLEAT, 22 GAUGE. FASTEN CLEAT WITH #8 X 3/4" TEK SCREWS @ 6" O.C. TO METAL CAP.
2. 1-1/2" MIN. HOT AIR WELD.
3. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.



NOTES:

1. CONTINUOUS METAL CLEAT, 22 GAUGE. FASTEN CLEAT WITH #8 X 3/4" TEK SCREWS @ 6" O.C. TO METAL CAP.
2. 1/8" CUT–EDGE SEALANT FOR TPO ONLY.
3. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.
4. HOT AIR WELD MEMBRANE SEAM, MIN. 1–1/2" WIDE.

COATED METAL: THE TOP SIDE OF SHEET METAL IS LAMINATED WITH PRE–APPLIED TPO, PVC AND OR KEE–HP, TO CONVENE THE WELDING OF MEMBRANE.

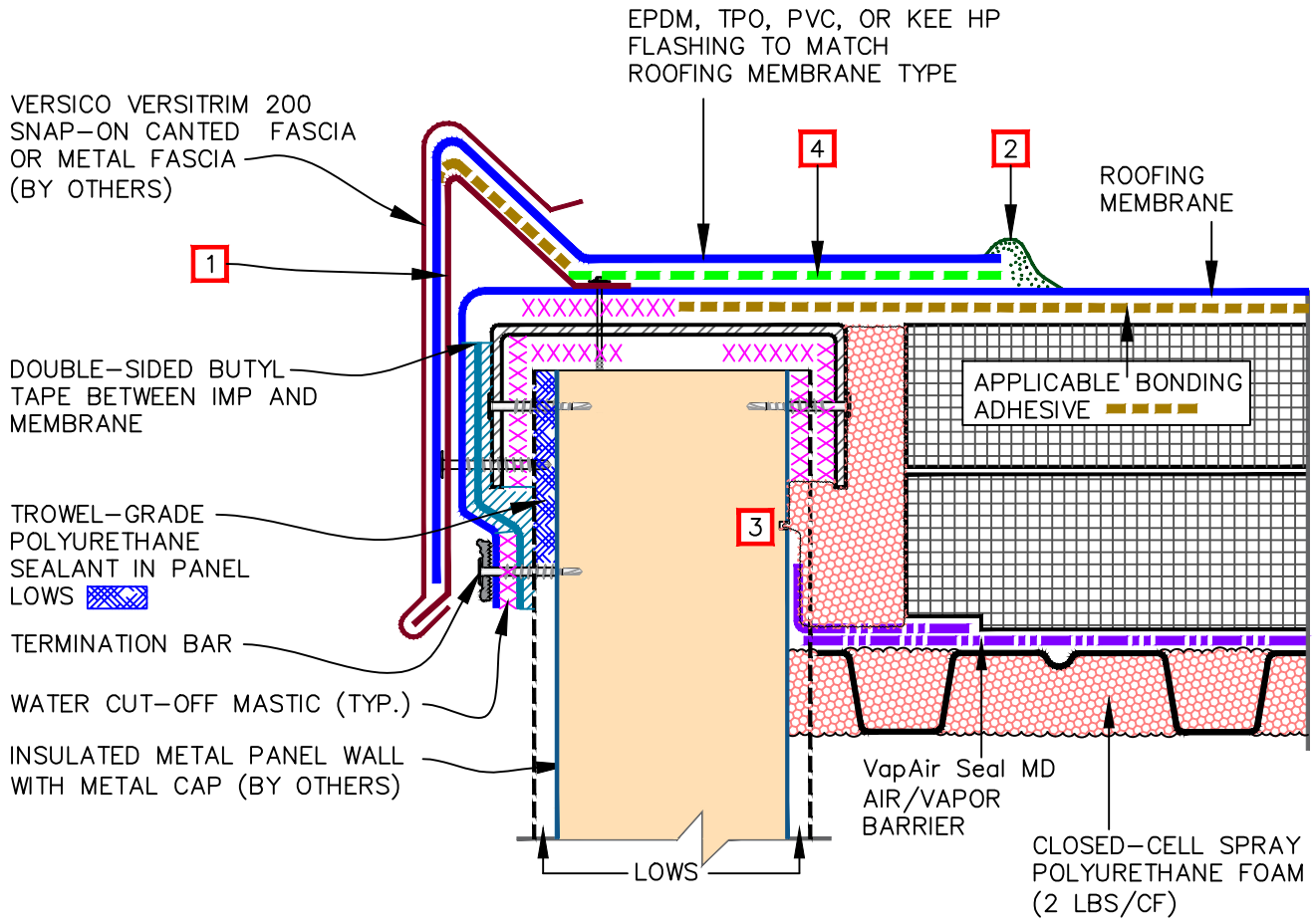
VERSICO ROOFING SYSTEMS

COATED METAL DRIP EDGE–IMP(INSULATED METAL PANEL) WALL – TPO/PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS–1.3



NOTES:

1. CONTINUOUS VERSITRIM INTEGRAL WATER DAM. FASTEN DAM WITH #8 X 3/4" TEK SCREWS @ 6" O.C. TO METAL CAP BOTH AT HORIZONTAL AND VERTICAL SIDES.
2. 1/8" CUT-EDGE SEALANT FOR TPO ONLY.
3. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.
4. 3" OR 6" QA SEAM TAPE WITH EPDM PRIMER FOR EPDM OR 1-1/2" MIN. HOT AIR WELD FOR TPO, PVC, OR KEE HP.

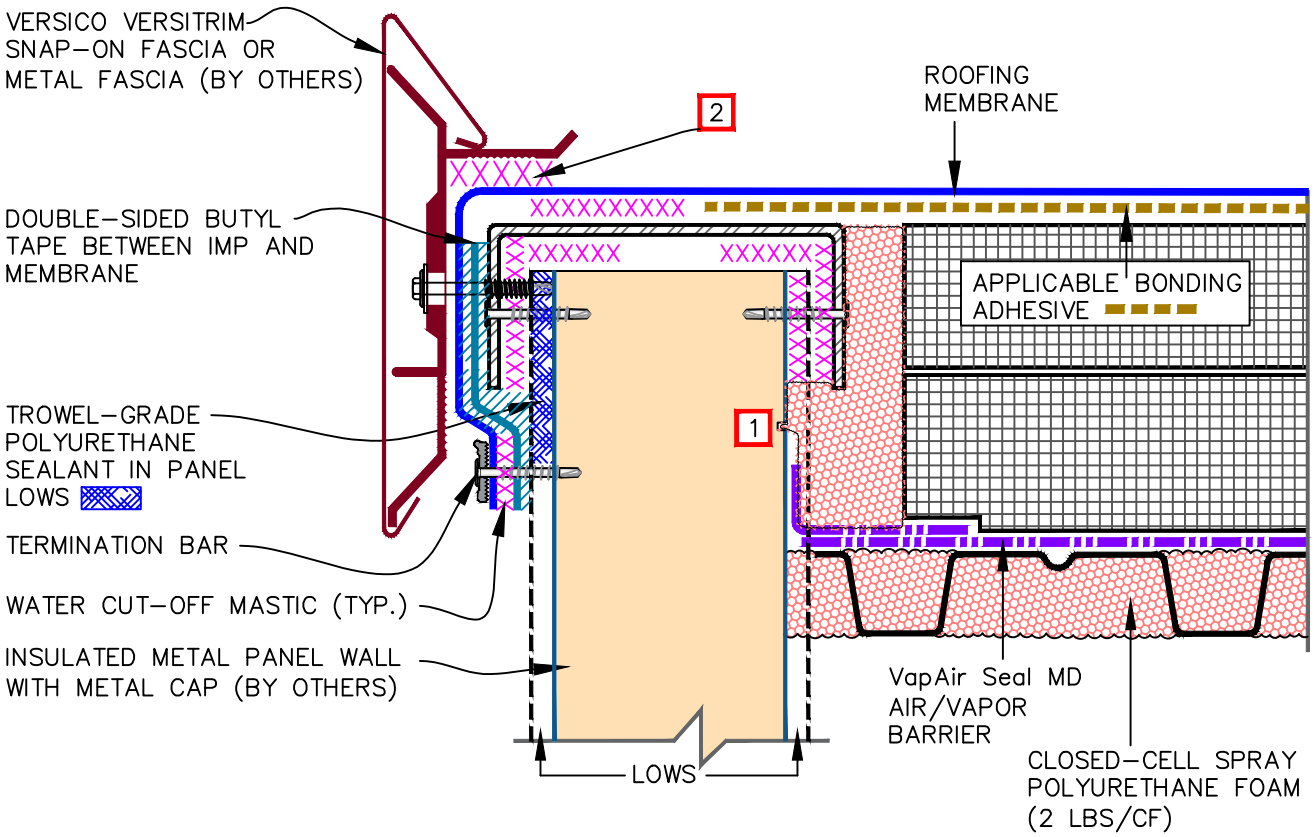
VERSICO ROOFING SYSTEMS

VERSITRIM SNAP-ON CANTED FASCIA – IMP (INSULATED METAL PANEL) WALL – EPDM/TPO/PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-1.4



NOTES:

1. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.
2. SEAL WITH CONTINUOUS WATER CUT–OFF MASTIC.

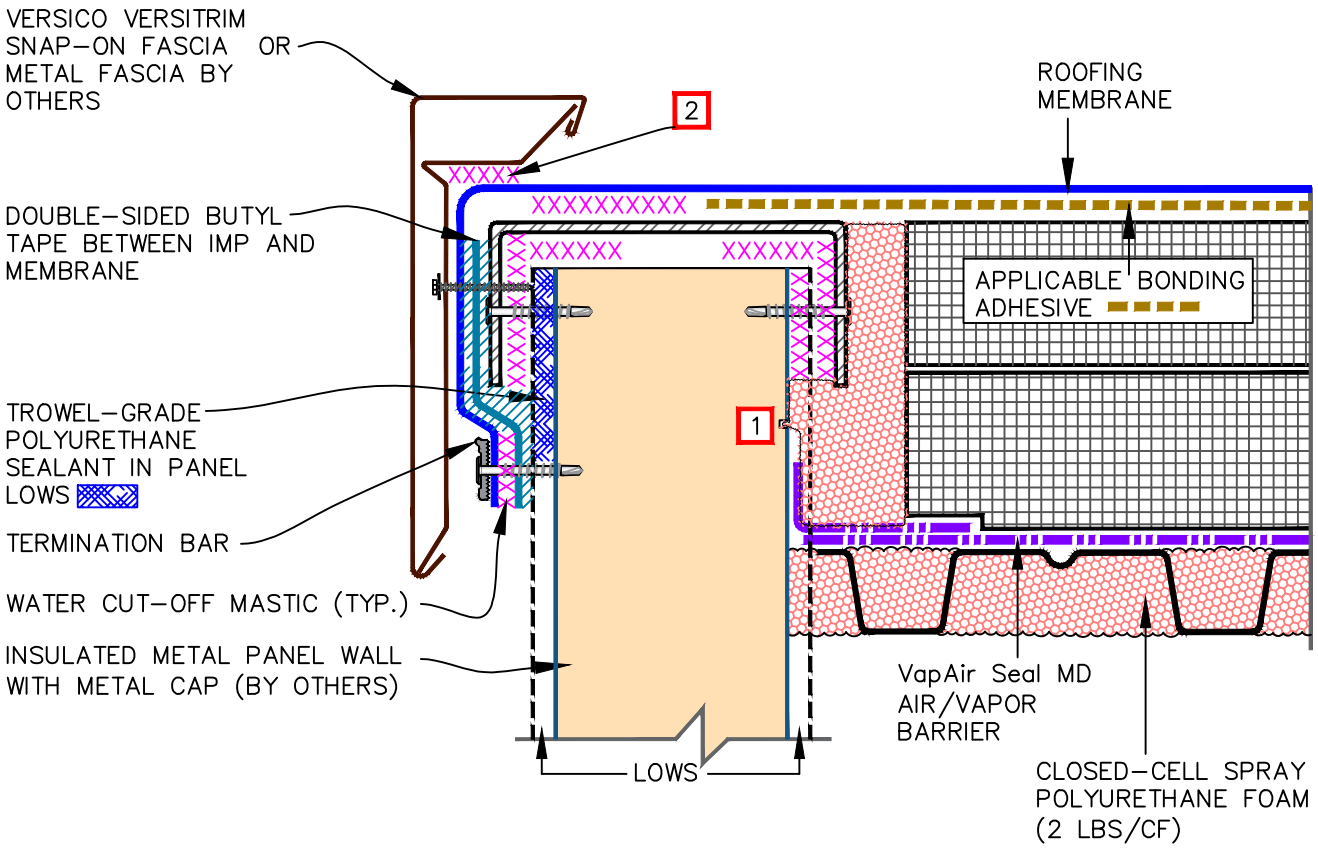
VERSICO ROOFING SYSTEMS

VERSITRIM SNAP–ON FASCIA – IMP (INSULATED METAL PANEL) WALL – EPDM/TPO/PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

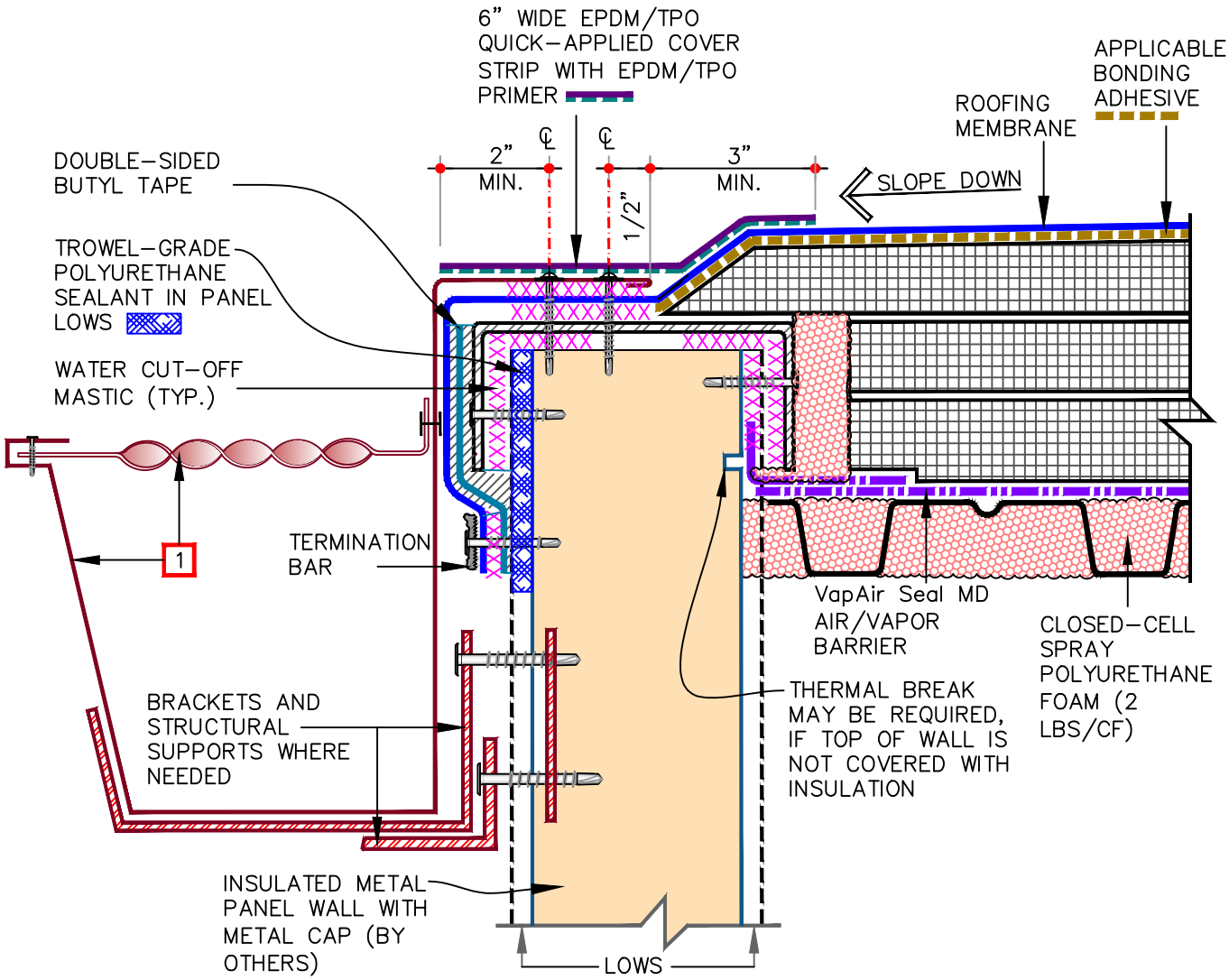
ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS–1.6



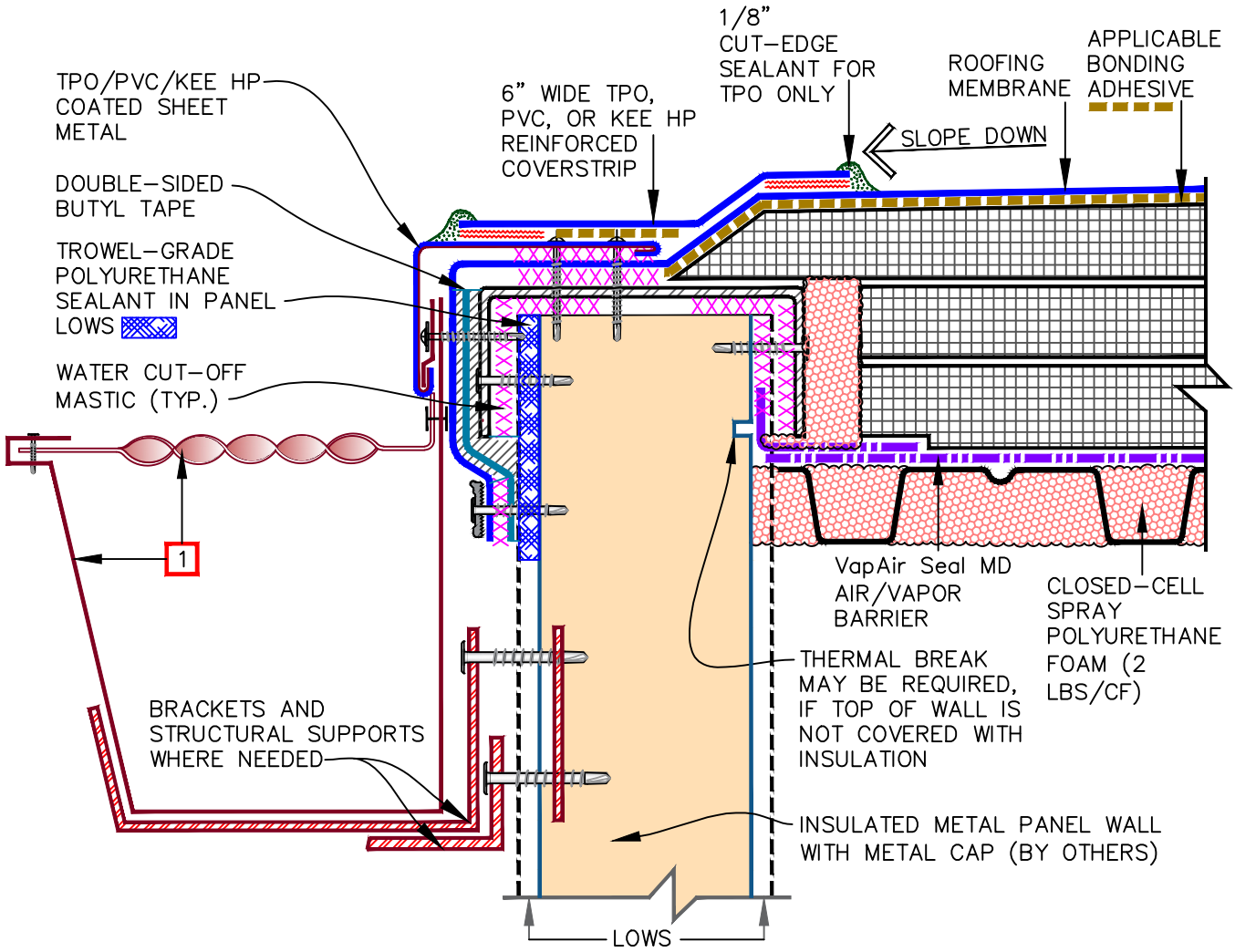
NOTES:

1. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.
2. SEAL WITH CONTINUOUS WATER CUT–OFF MASTIC.



NOTES:

1. SHEET METAL GUTTER DESIGN, PROFILE, MATERIALS AND SIZES AS REQUIRED BY DESIGNER.
2. ENSURE ALL PENETRATIONS AND FASTENERS ARE AIR AND WATER-TIGHT. USE SEALANT / MASTIC AS NEEDED (BY OTHERS).



NOTES:

1. SHEET METAL GUTTER DESIGN, PROFILE, MATERIALS AND SIZES AS REQUIRED BY DESIGNER.
2. ENSURE ALL PENETRATIONS AND FASTENERS ARE AIR AND WATER-TIGHT. USE SEALANT / MASTIC AS NEEDED (BY OTHERS).

COATED METAL: THE TOP SIDE OF SHEET METAL IS LAMINATED WITH PRE-APPLIED TPO, PVC AND OR KEE-HP, TO CONVENE THE WELDING OF MEMBRANE.

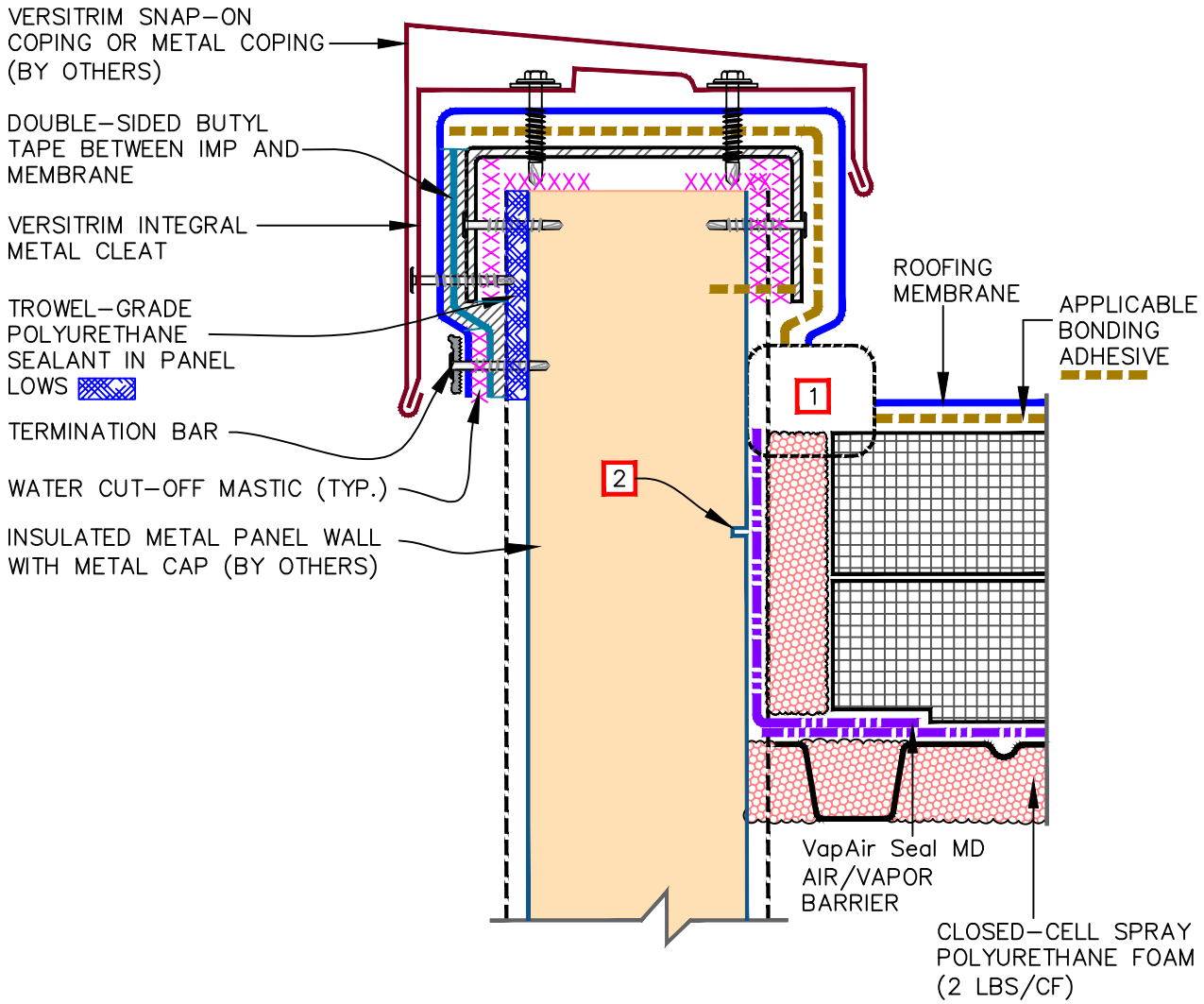
VERSICO ROOFING SYSTEMS

GUTTER WITH COATED METAL - IMP(INSULATED METAL PANEL) WALL - TPO/PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

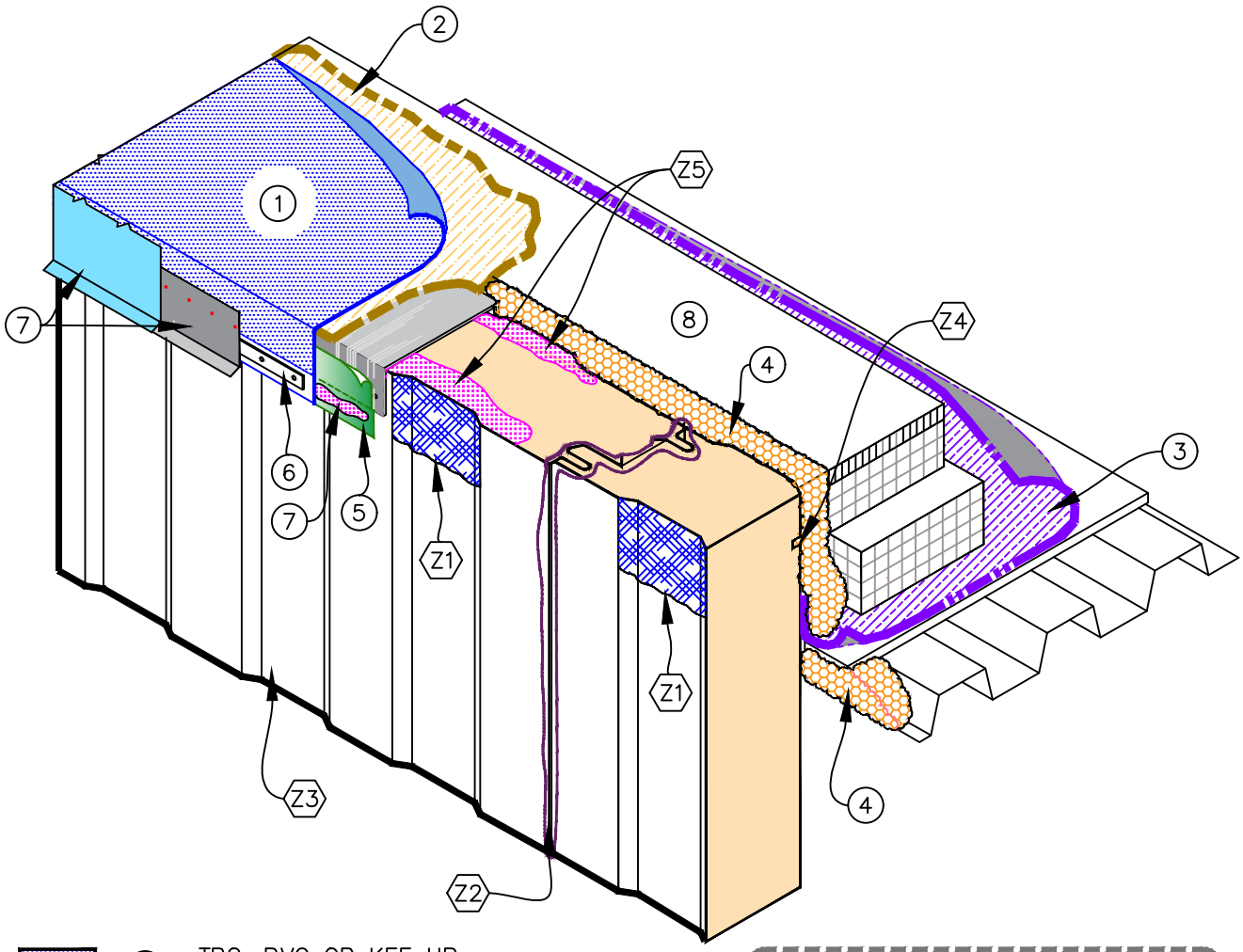
CS-1.9



NOTES:

1. VERTICAL TRANSITION NOT SHOWN FOR CLARITY. REFER TO CS–12 SERIES OF DETAILS FOR APPLICABLE VERTICAL TRANSITION METHODS.

2. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.



1. TPO, PVC OR KEE HP ROOF MEMBRANE
2. APPROVED BONDING ADHESIVE FOR EACH RESPECTIVE ROOF MEMBRANE
3. ROOF AIR AND VAPOR BARRIER, WHERE REQUIRED
4. CLOSED-CELL SPRAY POLYURETHANE FOAM (2 LBS/CF)
5. 3" CONTINUOUS DOUBLE SIDED BUTYL TAPE. OVERLAP, MIN. 1" OVERLAP AT TAPE ENDS
6. 1" CONTINUOUS TERMINATION BAR SECURED AT 6" O.C.
7. VERSITRIM ROOF EDGE METAL OR METAL EDGE BY OTHERS OR METAL GUTTER, SEE CS-1.1 TO CS-1.10.
8. INSULATION (GENERIC VIEW).
9. WATER CUT-OFF MASTIC, APPLIED BY ROOF INSTALLER

BY OTHER TRADES

- Z1 TROWEL-GRADE POLYURETHANE SEALANT IN PANEL LOWS.
- Z2 COMPLETELY SEAL ALL THE JOINTS INCLUDING TOP AND BOTTOM ENDS TO CREATE AN AIR-TIGHT SEAL.
- Z3 IMP: 4",5",6",8" OR AS REQUIRED, WITH HEAVY GAUGE METAL CLADDING
- Z4 CONTINUOUS THERMAL CUT IN PANELS.
- Z5 WATER CUT-OFF MASTIC, APPLIED BY IMP INSTALLER. CREATE AN AIR BARRIER SEAL

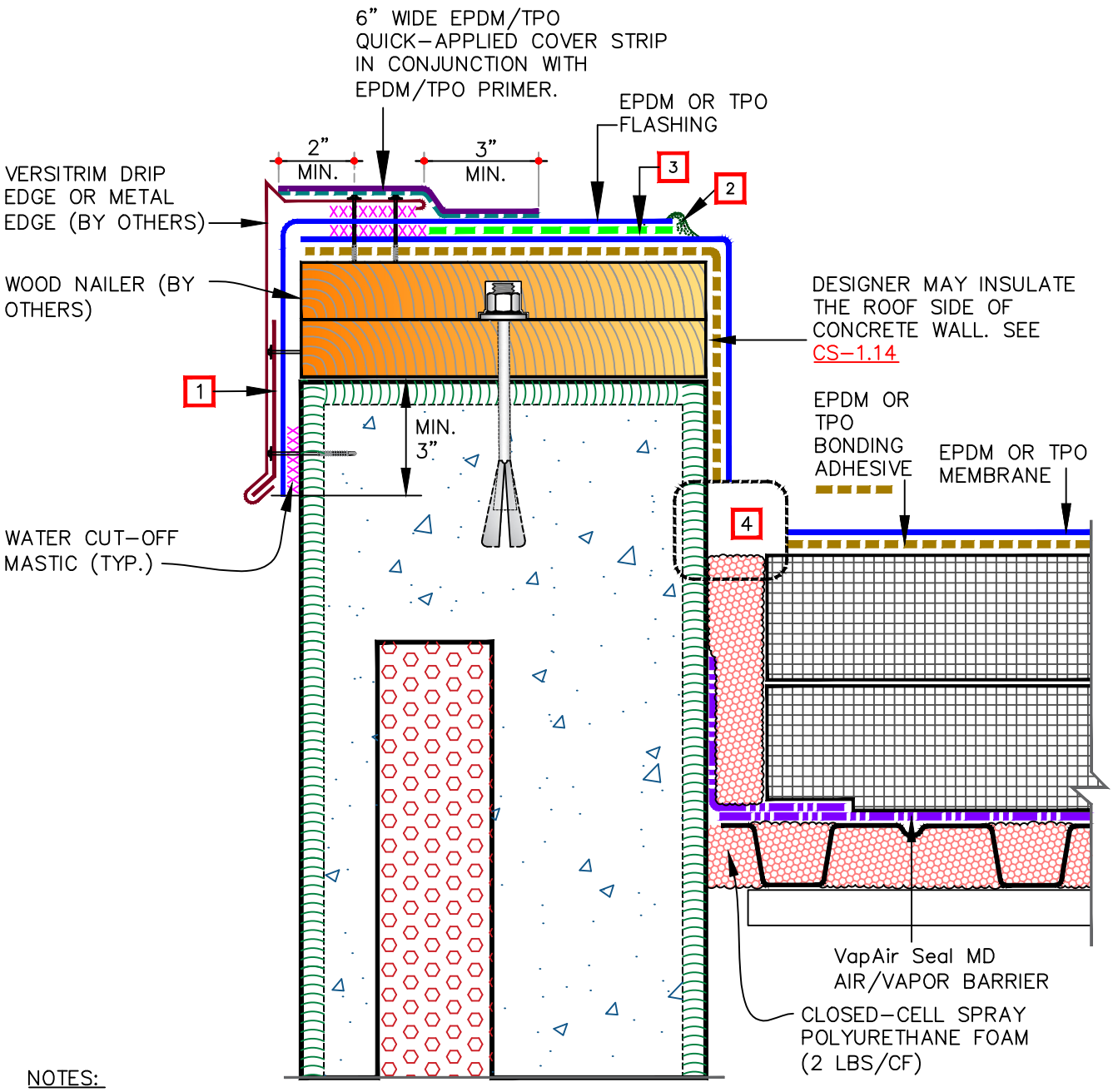
VERSICO ROOFING SYSTEMS

PREPARATION OF IMP (INSULATED METAL PANEL) WALLS FOR EDGE TERMINATIONS

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-1.11



NOTES:

1. CONTINUOUS METAL CLEAT, 22 GAUGE. FASTEN CLEAT WITH #8 X 3/4" TEK SCREWS @ 6" O.C. TO METAL CAP.
2. 1/8" CUT-EDGE SEALANT FOR TPO ONLY.
3. 3" OR 6" QA SEAM TAPE WITH EPDM PRIMER FOR EPDM OR 1-1/2" MIN. HOT AIR WELD FOR TPO.
4. VERTICAL TRANSITION NOT SHOWN FOR CLARITY. REFER TO VERSICO TYPICAL DETAILS, CS-12 SERIES OF FOR APPLICABLE VERTICAL TRANSITION METHODS.

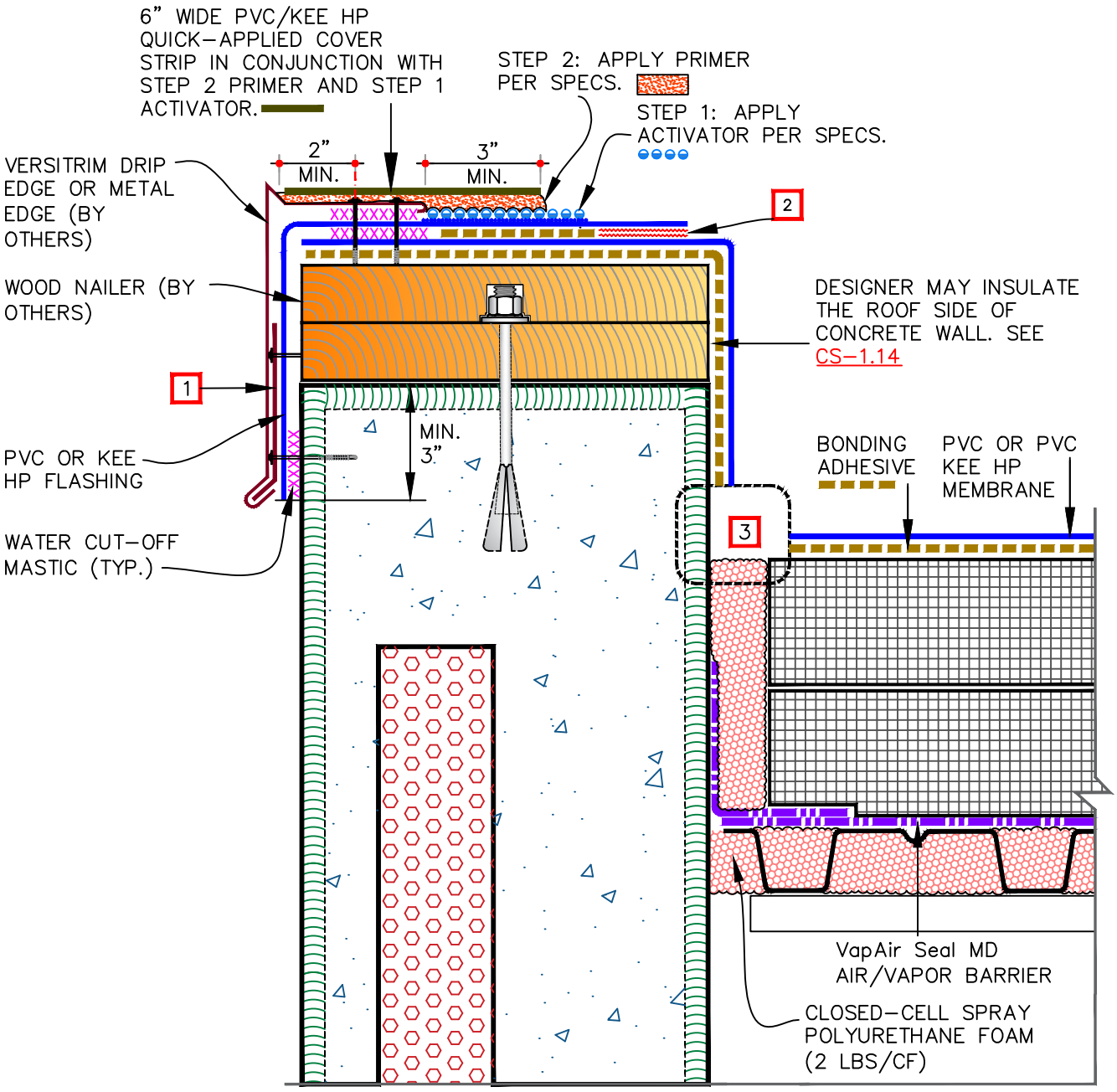
VERSICO ROOFING SYSTEMS

METAL DRIP EDGE-TILT-UP CONCRETE WALL - EPDM/TPO

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-1.12



NOTES:

1. CONTINUOUS METAL CLEAT, 22 GAUGE. FASTEN CLEAT WITH #8 X 3/4" TEK SCREWS @ 6" O.C. TO METAL CAP.
2. 1-1/2" MIN. HOT AIR WELD.
3. VERTICAL TRANSITION NOT SHOWN FOR CLARITY. REFER TO VERSICO TYPICAL DETAILS, CS-12 SERIES OF FOR APPLICABLE VERTICAL TRANSITION METHODS.

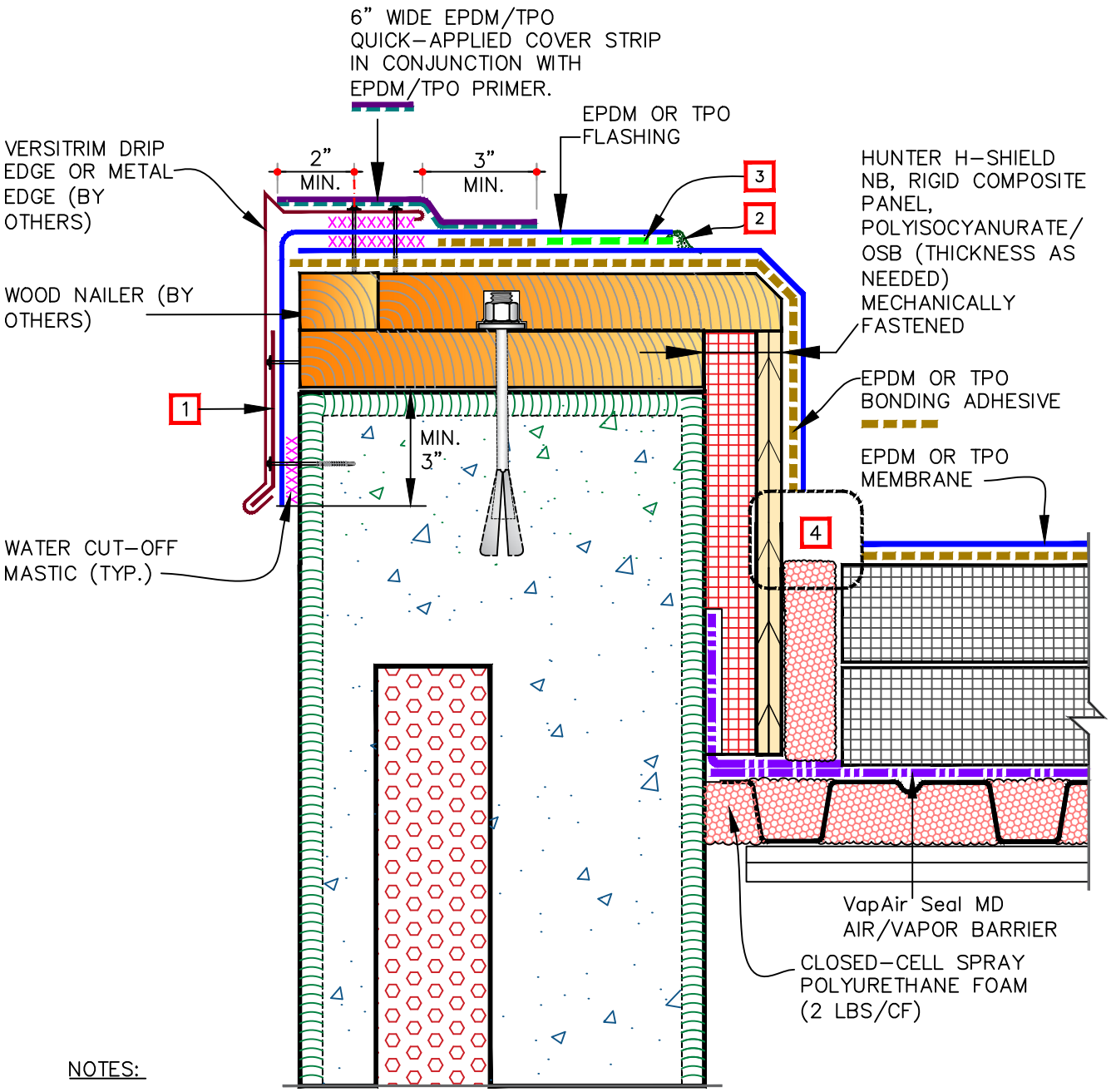
VERSICO ROOFING SYSTEMS

METAL DRIP EDGE-TILT-UP CONCRETE WALL - PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-1.13



NOTES:

1. CONTINUOUS METAL CLEAT, 22 GAUGE. FASTEN CLEAT WITH #8 X 3/4" TEK SCREWS @ 6" O.C. TO METAL CAP.
2. 1/8" CUT-EDGE SEALANT FOR TPO ONLY.
3. 3" OR 6" QA SEAM TAPE IN CONJUNCTION WITH EPDM PRIMER FOR EPDM OR 1 1/2" MIN. HOT AIR WELD FOR TPO.
4. VERTICAL TRANSITION NOT SHOWN FOR CLARITY. REFER TO VERSICO TYPICAL DETAILS, CS-12 SERIES OF FOR APPLICABLE VERTICAL TRANSITION METHODS.

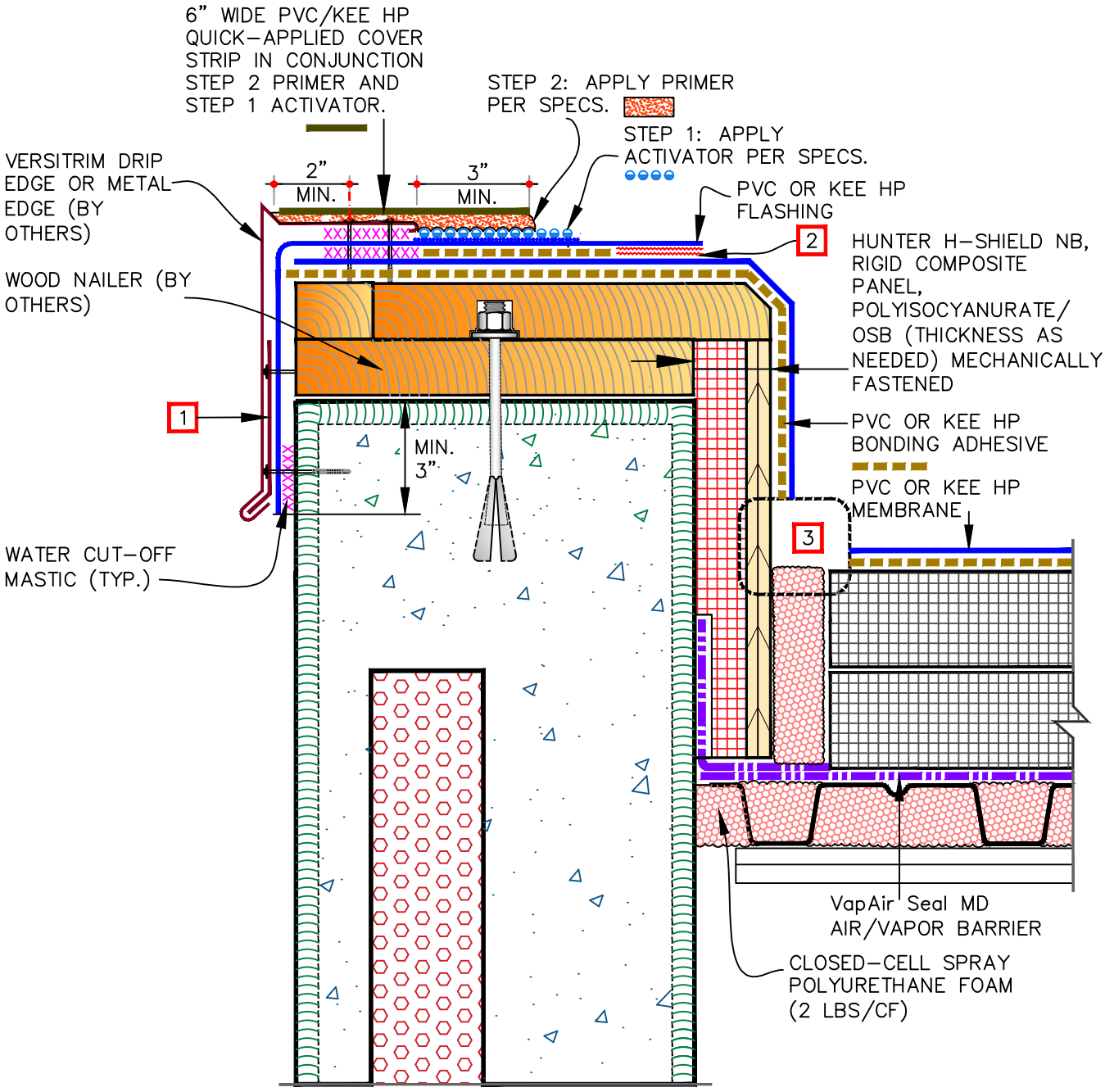
VERSICO ROOFING SYSTEMS

METAL DRIP EDGE-TILT-UP CONCRETE WALL WITH INSULATED PARAPET - EPDM/TPO

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-1.14

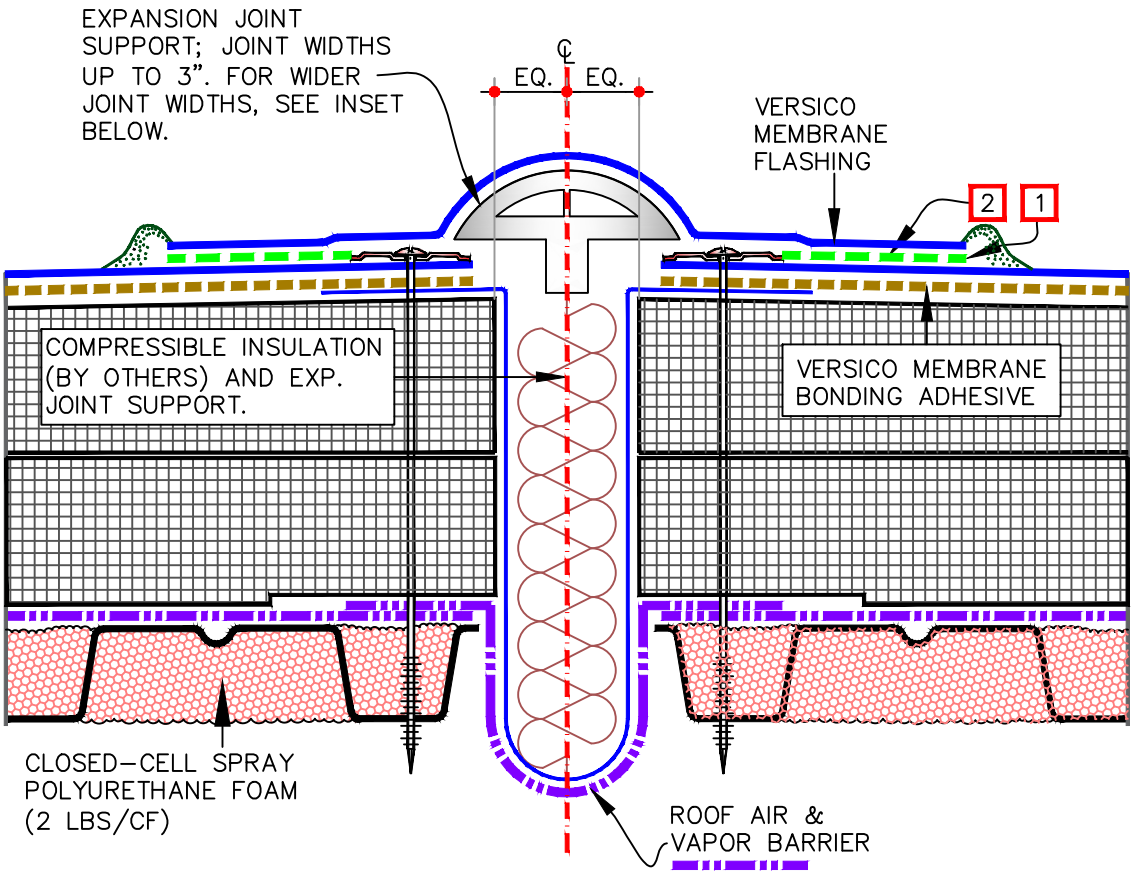


NOTES:

1. CONTINUOUS METAL CLEAT, 22 GAUGE. FASTEN CLEAT WITH #8 X 3/4" TEK SCREWS @ 6" O.C. TO METAL CAP.
2. 1 1/2" MIN. HOT AIR WELD.
3. VERTICAL TRANSITION NOT SHOWN FOR CLARITY. REFER TO CS-12 SERIES OF DETAILS FOR APPLICABLE VERTICAL TRANSITION METHODS.

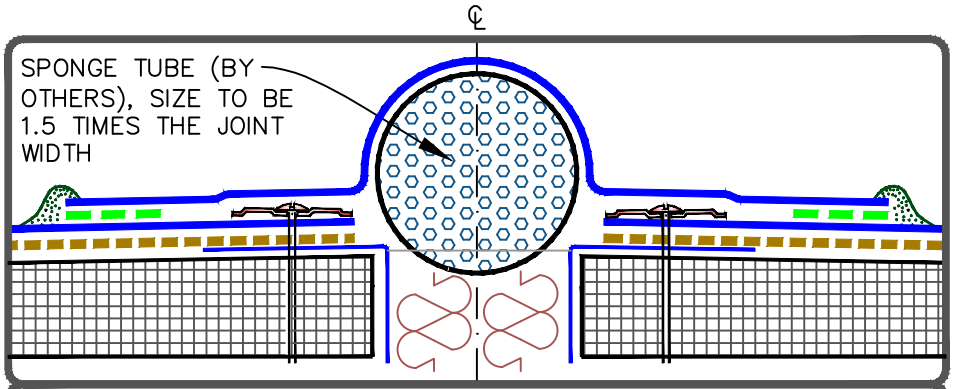
CAUTION

ENSURE EXPANSION JOINT ENDS ARE COMPLETELY SEALED AT BOTH ENDS OF THE EXPANSION JOINT TO ENSURE NO AIR INFILTRATION OCCURS.



NOTES:

1. 1/8" CUT-EDGE SEALANT FOR TPO ONLY
2. 3" OR 6" QA SEAM TAPE WITH EPDM PRIMER FOR EPDM OR 1 1/2" MIN. HOT AIR WELD FOR TPO, PVC, OR KEE HP.



JOINT WIDTHS GREATER THAN 3"

VERSICO ROOFING SYSTEMS

DECK-TO-DECK EXPANSION JOINT - ALL MEMBRANES

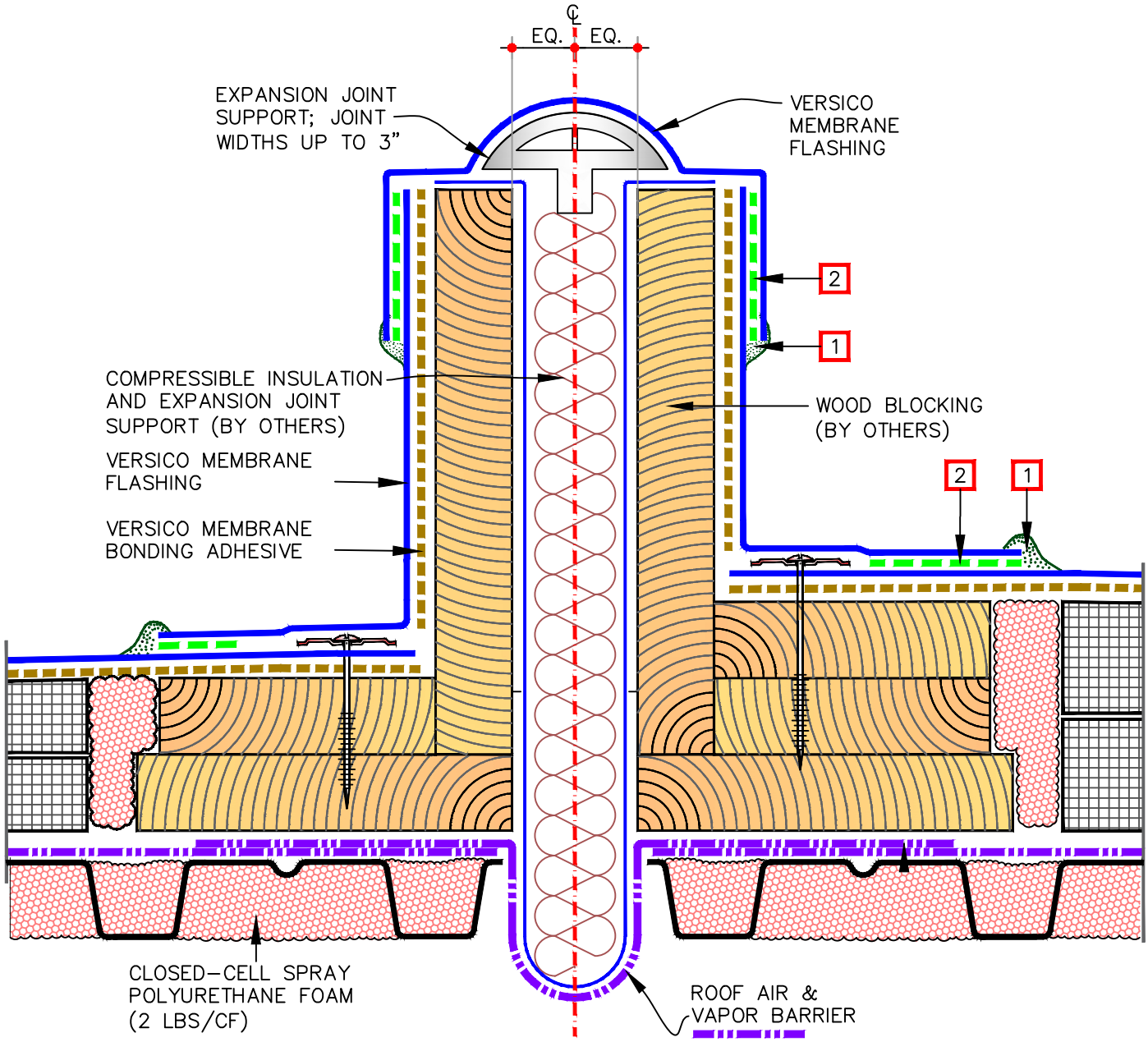
MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-3.1

CAUTION

ENSURE EXPANSION JOINT ENDS ARE COMPLETELY SEALED AT BOTH ENDS OF THE EXPANSION JOINT TO ENSURE NO AIR INFILTRATION OCCURS.



NOTES:

1. 1/8" CUT-EDGE SEALANT FOR TPO ONLY
2. 3" OR 6" QA SEAM TAPE IN CONJUNCTION WITH EPDM PRIMER FOR EPDM OR 1 1/2" MIN. HOT AIR WELD FOR TPO, PVC, OR KEE HP.

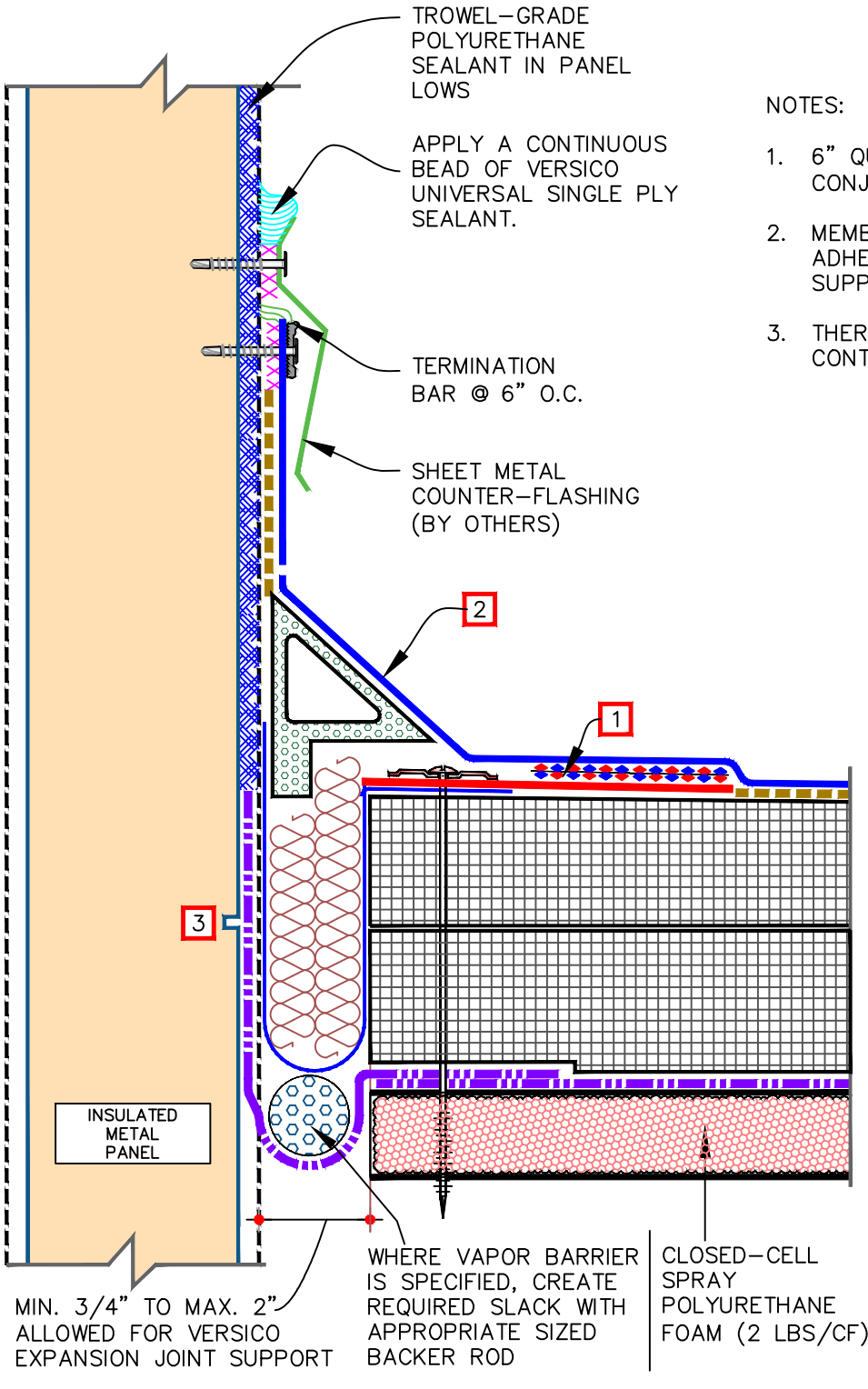
VERSICO ROOFING SYSTEMS

DECK-TO-DECK CURBED EXPANSION JOINT – ALL MEMBRANES

MAXIMUM WARRANTY: 20 YEARS

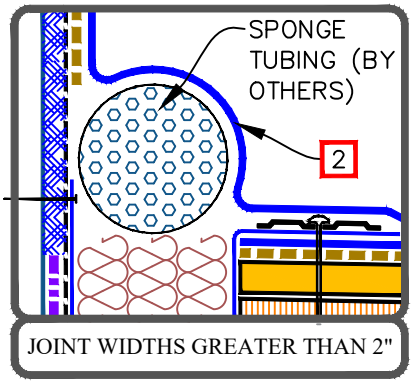
ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

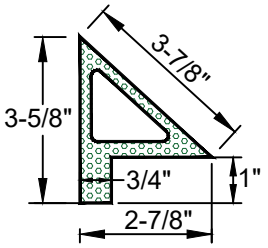
CS-3.2



NOTES:

1. 6" QUICK-APPLIED RTS IN CONJUNCTION WITH EPDM PRIMER.
2. MEMBRANE FLASHING SHALL NOT BE ADHERED OVER THE EXPANSION JOINT SUPPORT OR SPONGE TUBING.
3. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.





FOR MAX. 2" GAP ACTUAL DIMENSIONS OF EJ SUPPORT

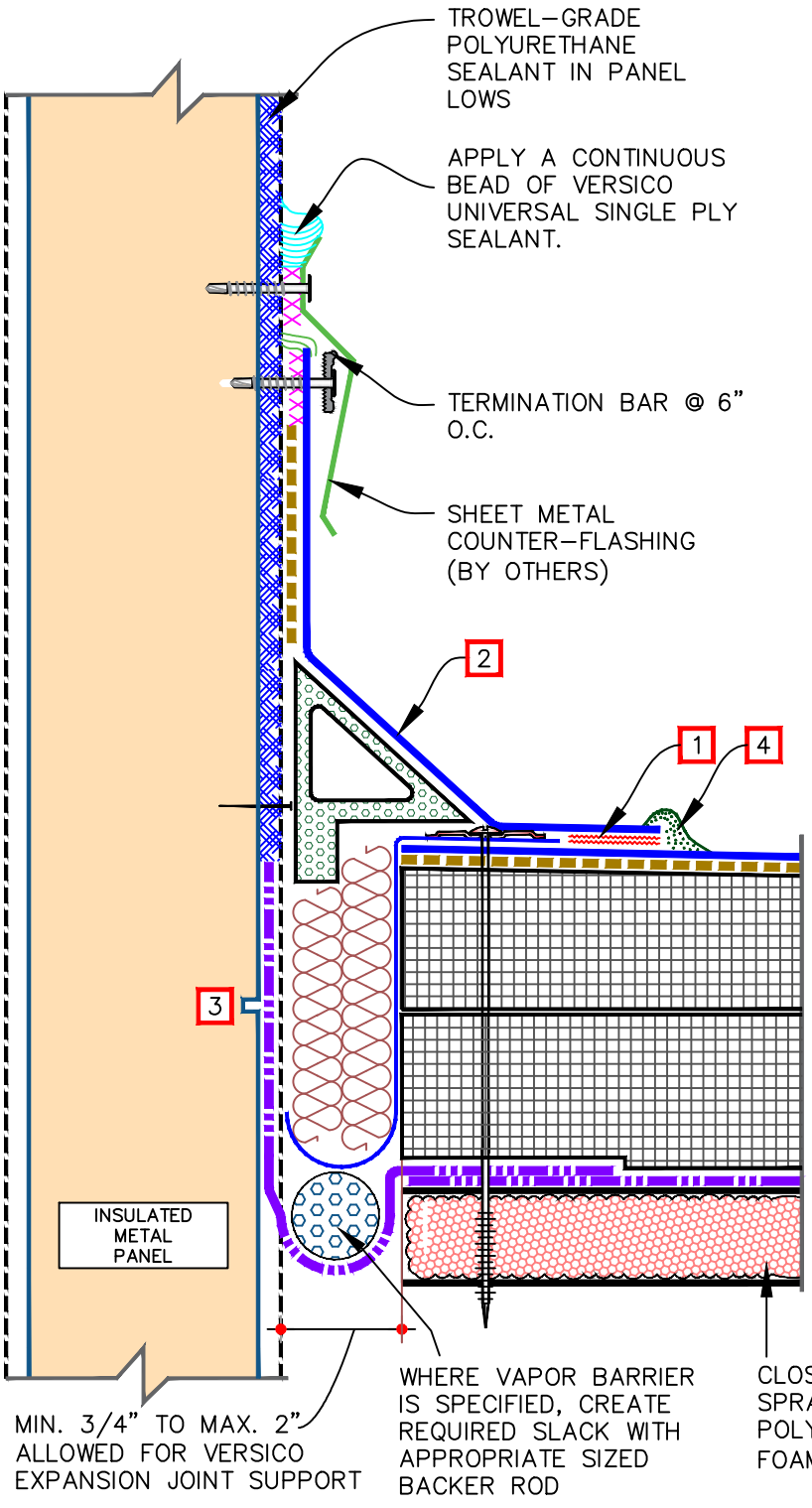
VERSICO ROOFING SYSTEMS

DECK-TO-WALL EXPANSION JOINT - EPDM

MAXIMUM WARRANTY: 20 YEARS

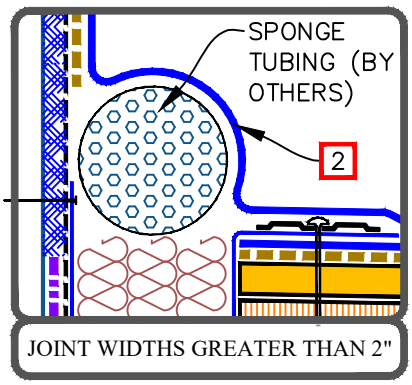
ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

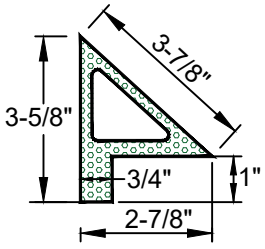
CS-3.3



NOTES:

1. 1-1/2" MIN. HOT AIR WELD
2. MEMBRANE FLASHING SHALL NOT BE ADHERED OVER THE EXPANSION JOINT SUPPORT OR SPONGE TUBING.
3. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.
4. 1/8" CUT-EDGE SEALANT FOR TPO ONLY.





FOR MAX. 2" GAP ACTUAL DIMENSIONS OF EJ SUPPORT

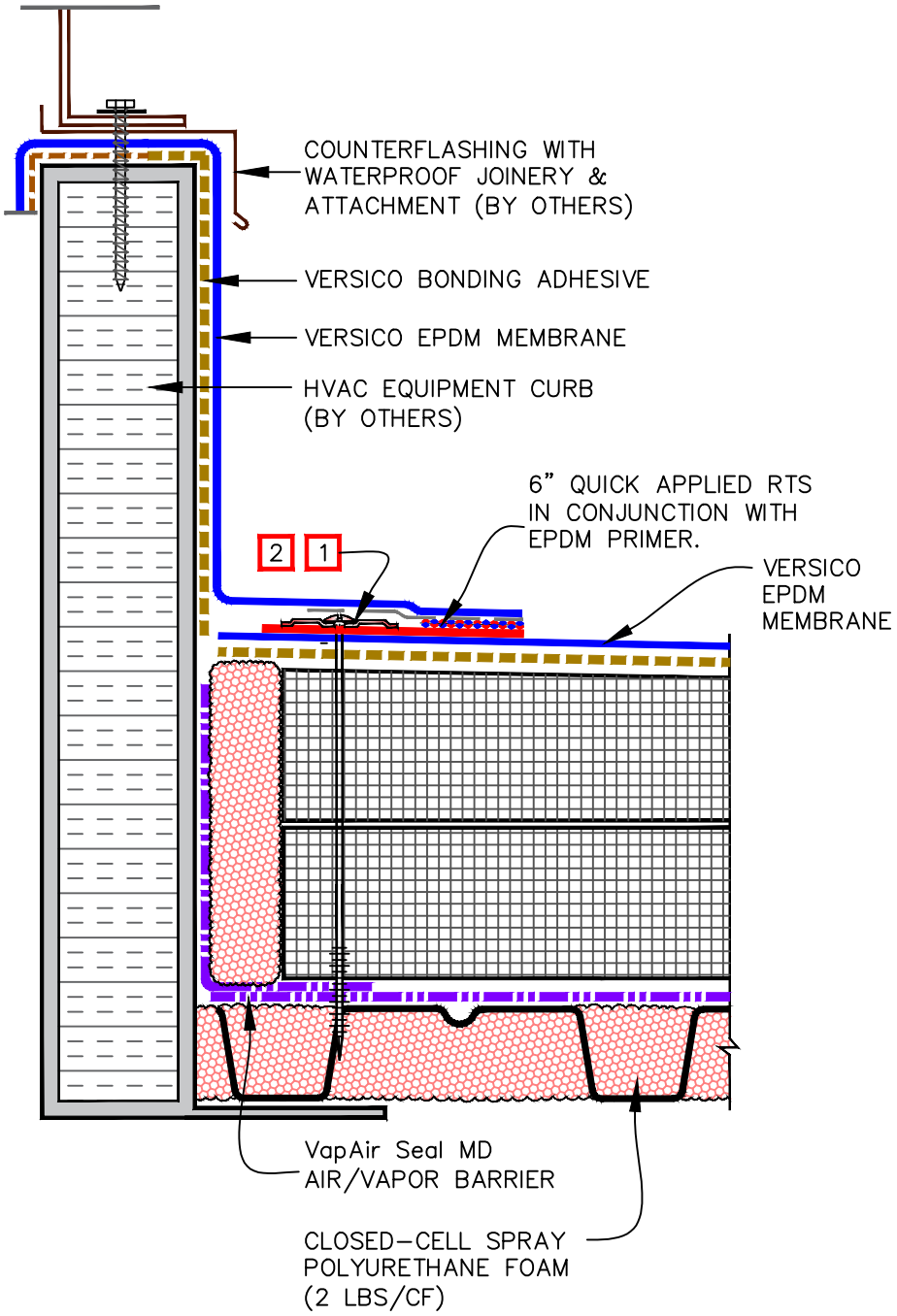
VERSICO ROOFING SYSTEMS

DECK-TO-WALL EXPANSION JOINT - TPO/PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-3.4



NOTES:

1. VERSICO FASTENER AND SEAM PLATE, MAX. 12" O.C.
2. SEAM PLATES & FASTENERS MAY BE INSTALLED INTO THE VERTICAL SUBSTRATE.

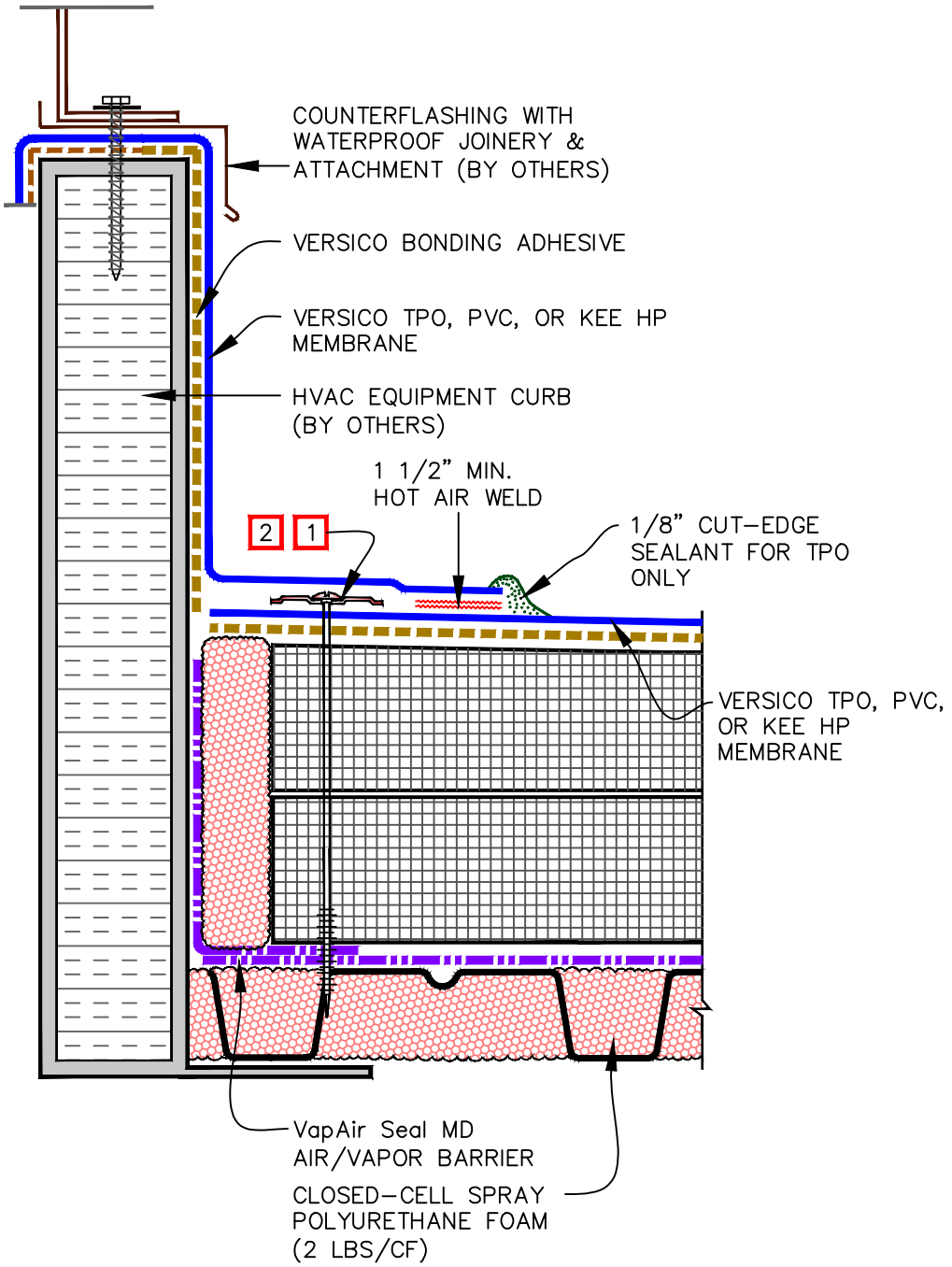
VERSICO ROOFING SYSTEMS

HVAC CURB FLASHING – EPDM

MAXIMUM WARRANTY: 20 YEARS

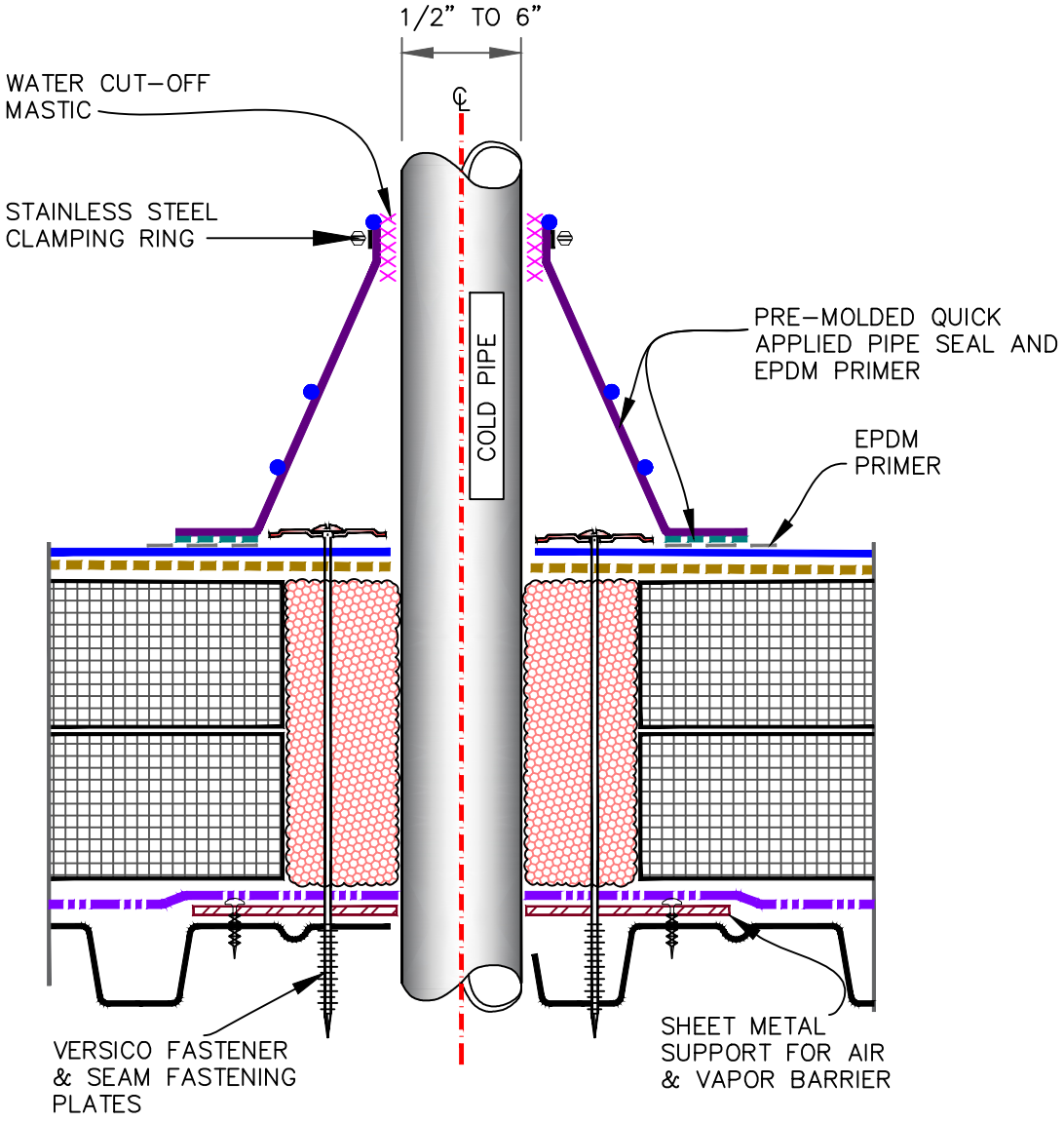
ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-5.1



NOTES:

1. VERSICO FASTENER AND SEAM PLATE, MAX. 12" O.C.
2. SEAM PLATES & FASTENERS MAY BE INSTALLED INTO THE VERTICAL SUBSTRATE.



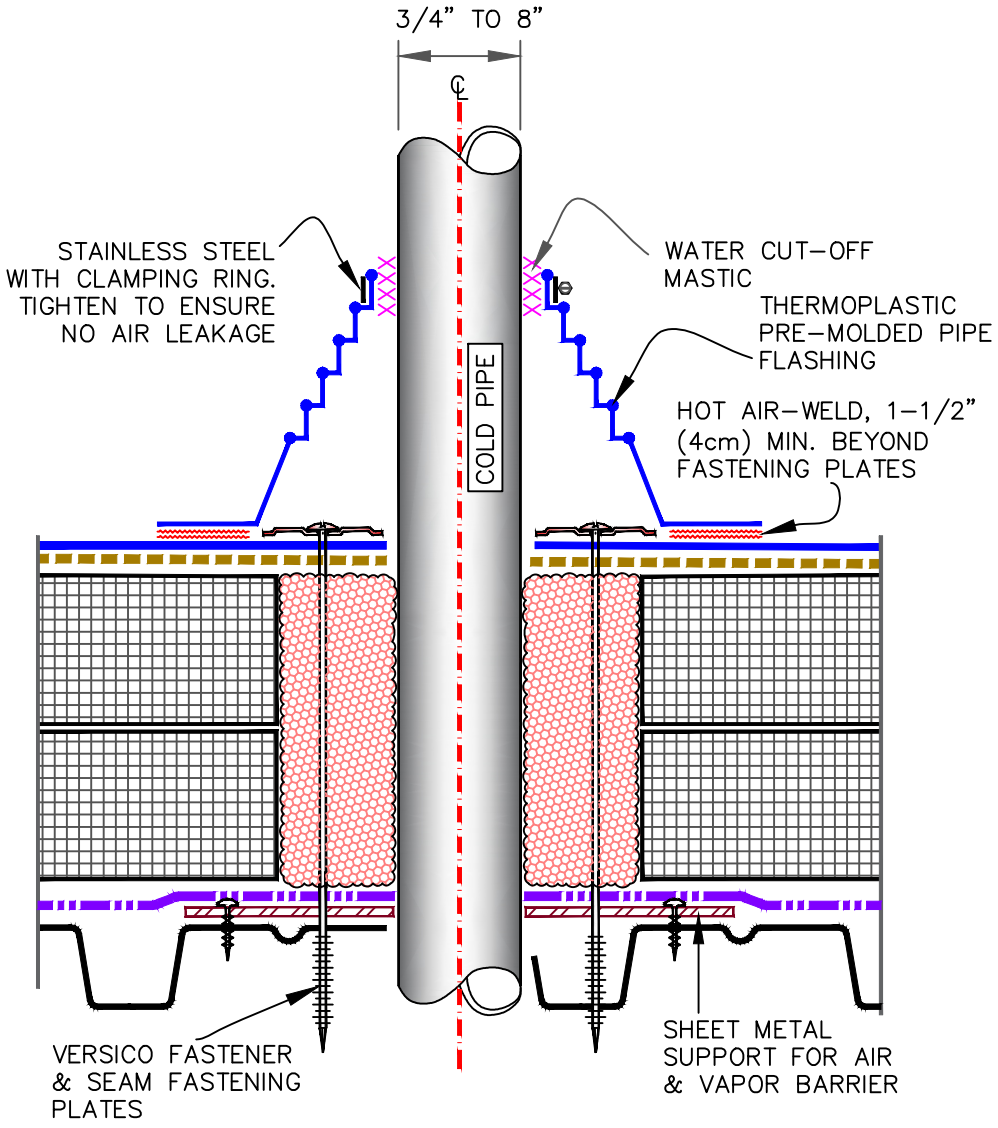
VERSICO ROOFING SYSTEMS

QUICK-APPLIED PIPE FLASHING - EPDM

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-8.1



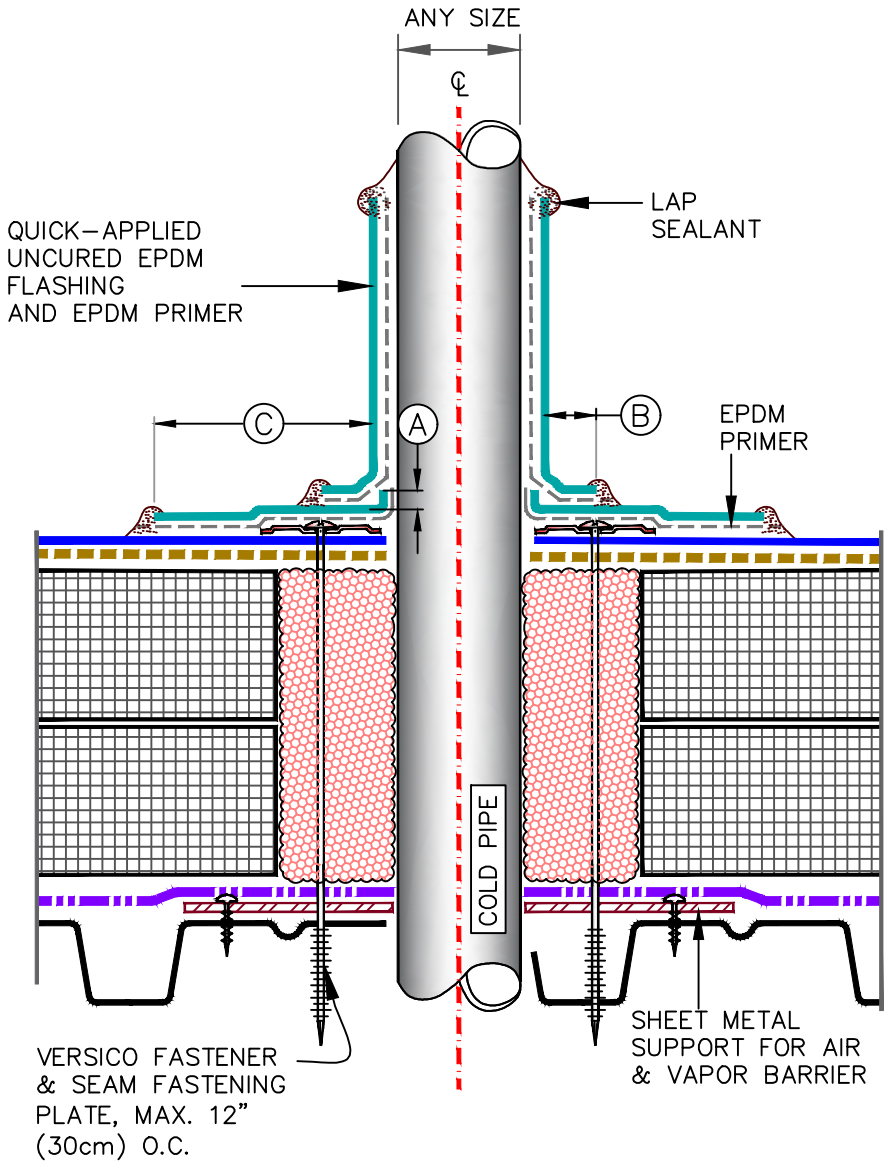
VERSICO ROOFING SYSTEMS

PRE-MOLDED PIPE FLASHING-TPO/PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-8.2



DIMENSIONS		
Ⓐ	1/2"	MIN.
Ⓑ	1"	MIN.
Ⓒ	3"	MIN.

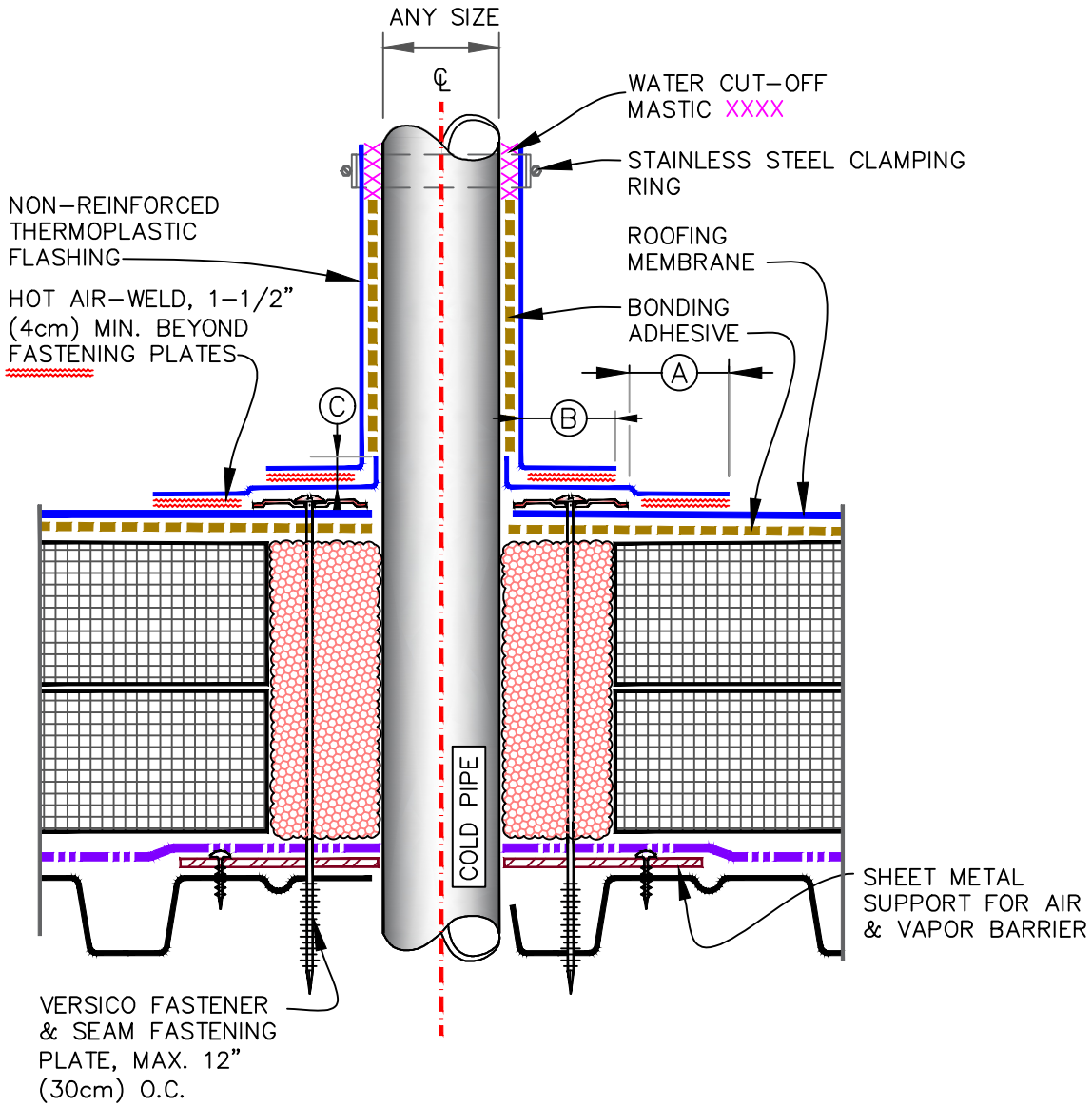
VERSICO ROOFING SYSTEMS

FIELD FABRICATED PIPE FLASHING – EPDM

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS–8.3



DIMENSIONS		
A	1-1/2"	TO 2"
B	1"	MIN.
C	1/2"	MIN.

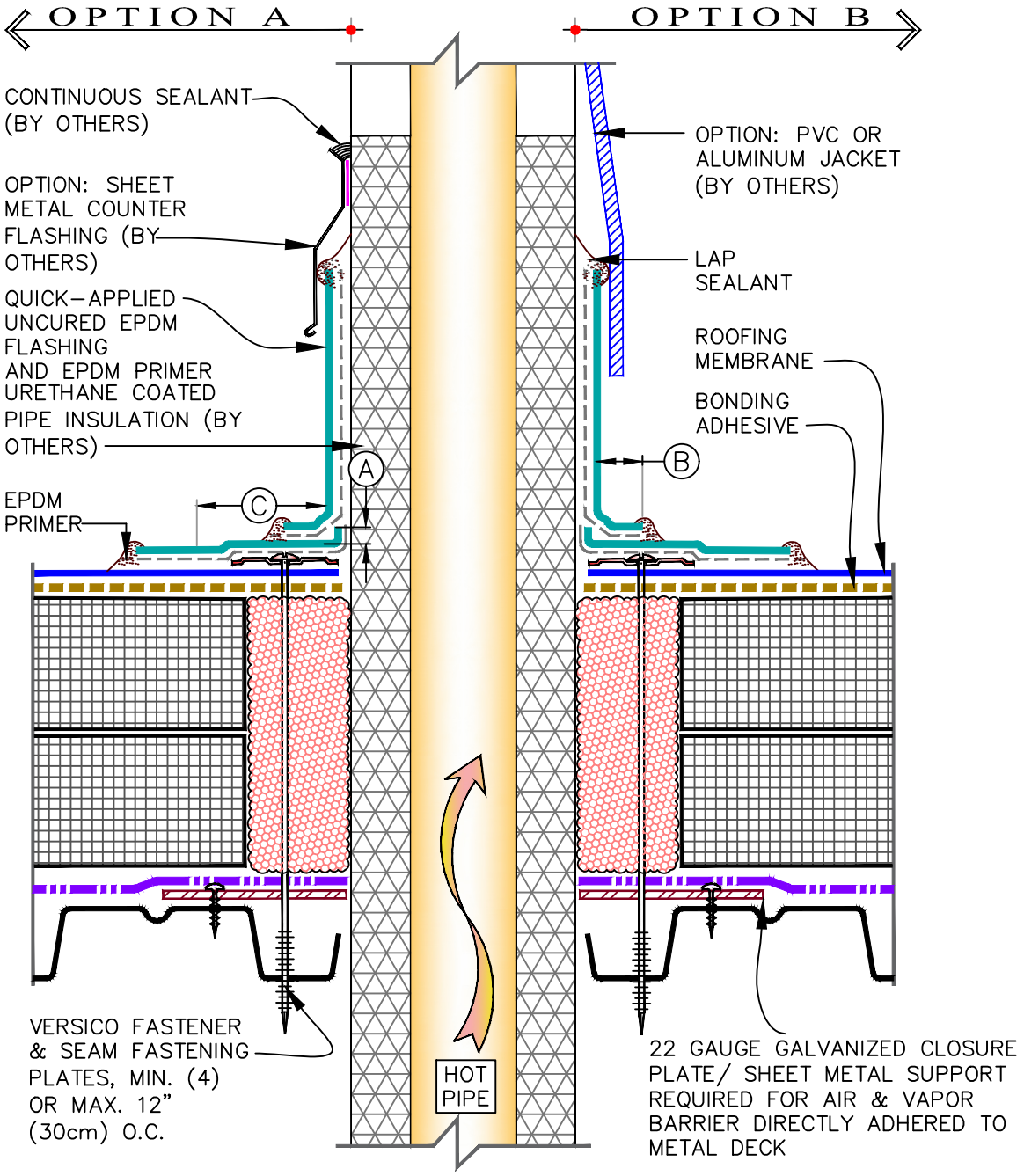
VERSICO ROOFING SYSTEMS

FIELD FABRICATED PIPE FLASHING-TPO/PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-8.4



NOTES:

1. TEMPERATURE OF METAL COLLAR MUST NOT EXCEED 180°F (82°C).
2. IN COLDER TEMPERATURES, A HEAT GUN MUST BE USED WHEN FORMING QUICK–APPLIED UNCURED EPDM FLASHING.

DIMENSIONS		
A	1/2"	MIN.
B	1"	MIN.
C	3"	MIN.

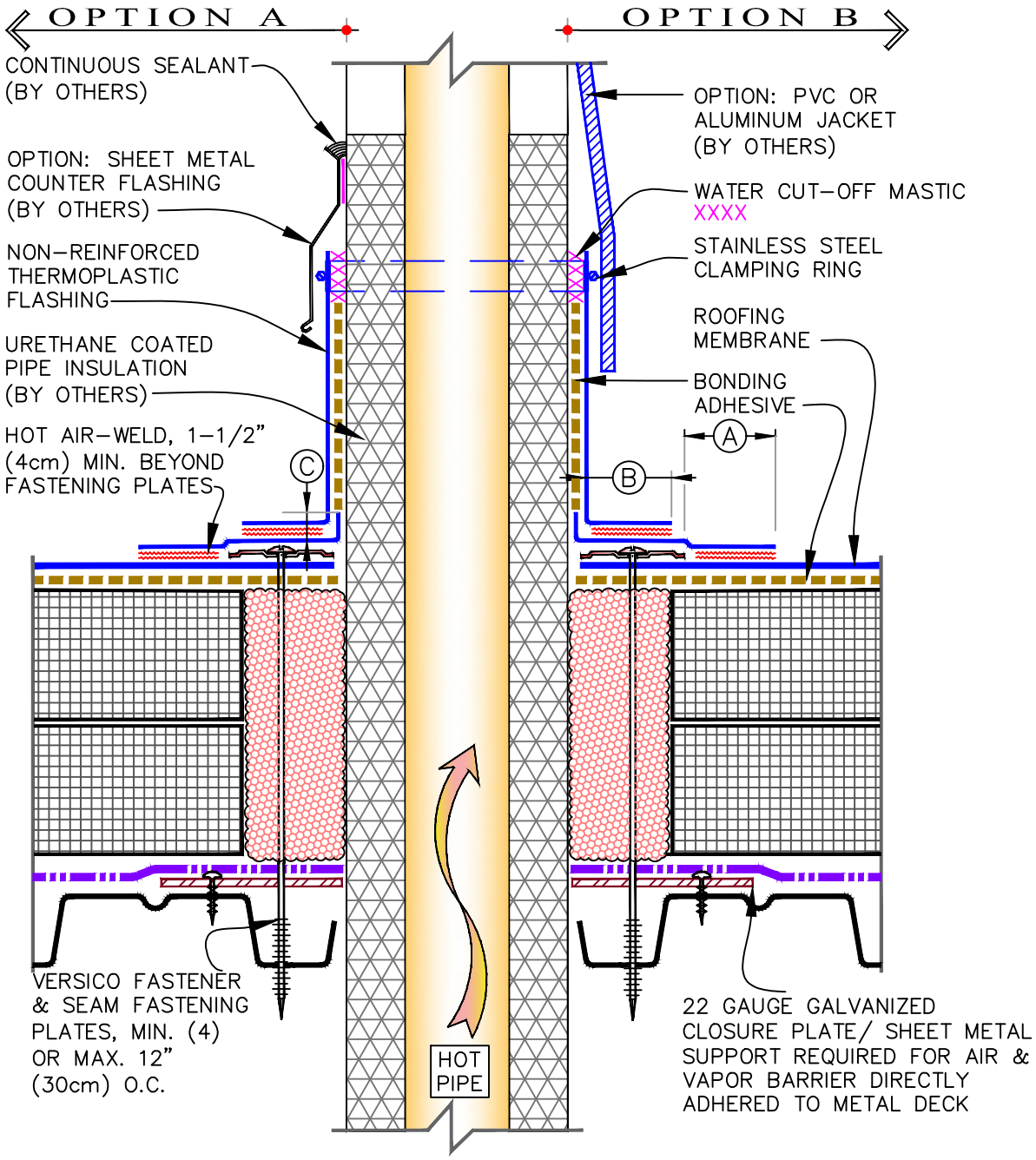
VERSICO ROOFING SYSTEMS

INSULATED PIPE FLASHING – EPDM

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS–8.5



NOTES:

1. TEMPERATURE OF METAL COLLAR MUST NOT EXCEED, 180°F (71°C) WHEN USING TPO AND 140°F (60°C) WHEN USING PVC.
2. IN COLDER TEMPERATURES, A HEAT GUN MUST BE USED WHEN FORMING QUICK-APPLIED UNCURED EPDM FLASHING.

DIMENSIONS		
A	1-1/2"	TO 2"
B	1"	MIN.
C	1/2"	MIN.

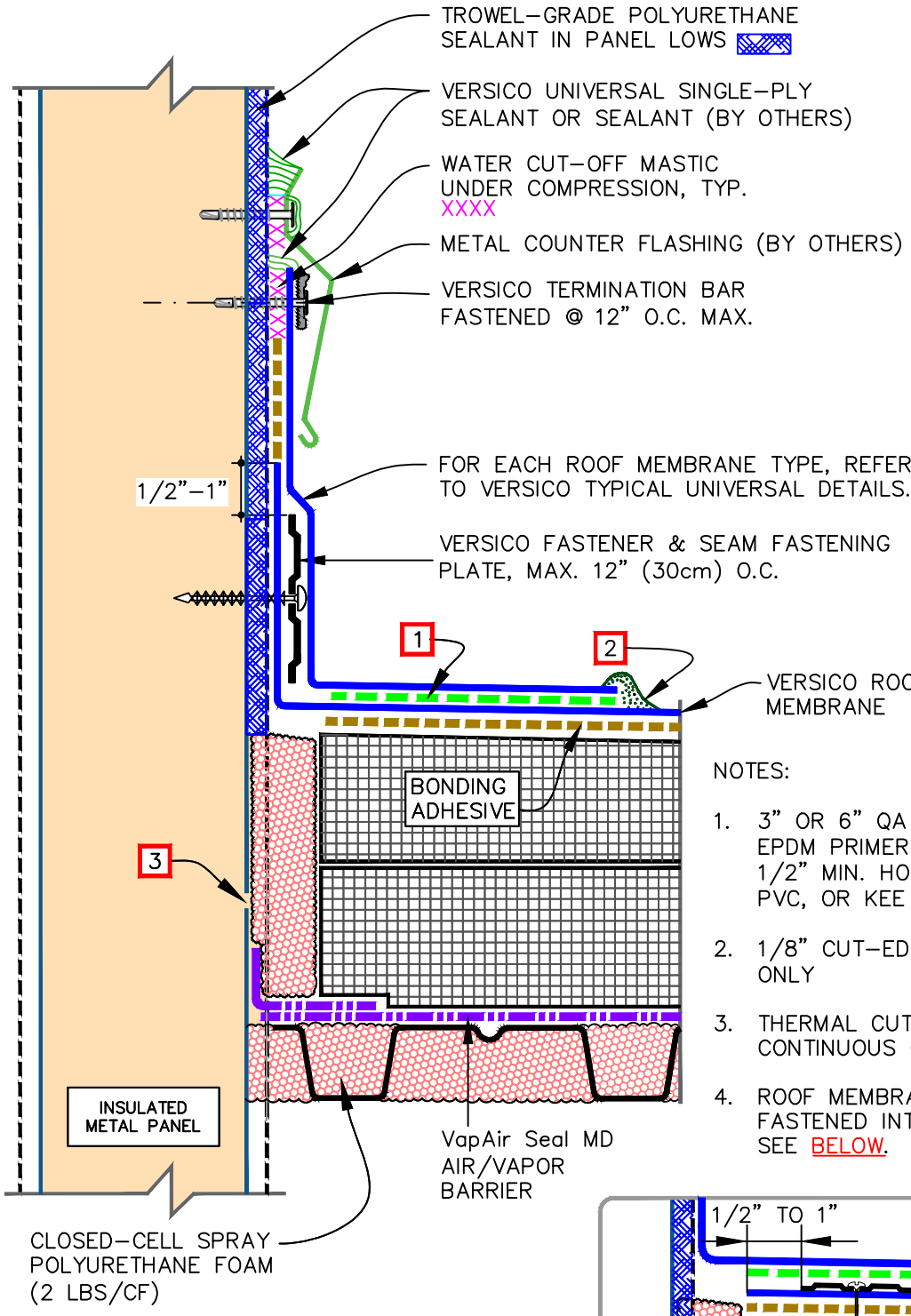
VERSICO ROOFING SYSTEMS

INSULATED PIPE FLASHING – TPO/PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

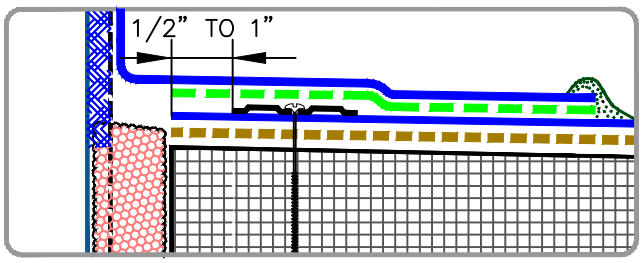
ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-8.6



NOTES:

1. 3" OR 6" QA SEAM TAPE WITH EPDM PRIMER FOR EPDM OR 1 1/2" MIN. HOT AIR WELD FOR TPO, PVC, OR KEE HP.
2. 1/8" CUT–EDGE SEALANT FOR TPO ONLY
3. THERMAL CUT IN IMP SKIN. CONTINUOUS ON INTERIOR SIDE.
4. ROOF MEMBRANE MAY BE FASTENED INTO ROOF DECK ALSO. SEE BELOW.



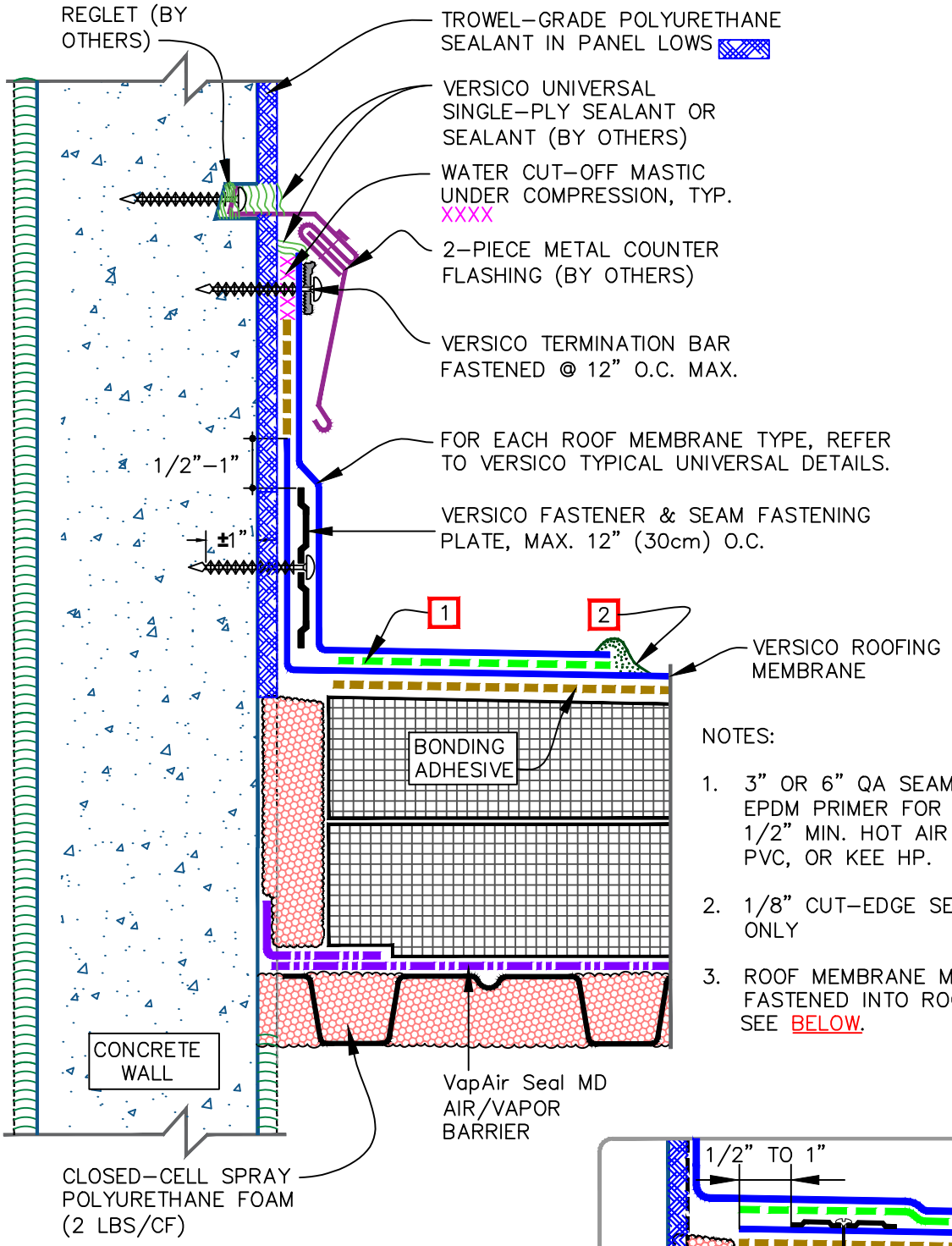
VERSICO ROOFING SYSTEMS

PARAPET BASE FLASHING FASTENED INTO METAL DECK OR IMP WALL – ALL MEMBRANES

MAXIMUM WARRANTY: 20 YEARS

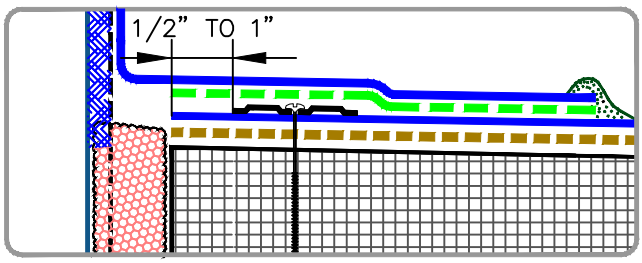
ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS–12.1



NOTES:

1. 3" OR 6" QA SEAM TAPE WITH EPDM PRIMER FOR EPDM OR 1 1/2" MIN. HOT AIR WELD FOR TPO, PVC, OR KEE HP.
2. 1/8" CUT-EDGE SEALANT FOR TPO ONLY
3. ROOF MEMBRANE MAY ALSO BE FASTENED INTO ROOF DECK. SEE BELOW.



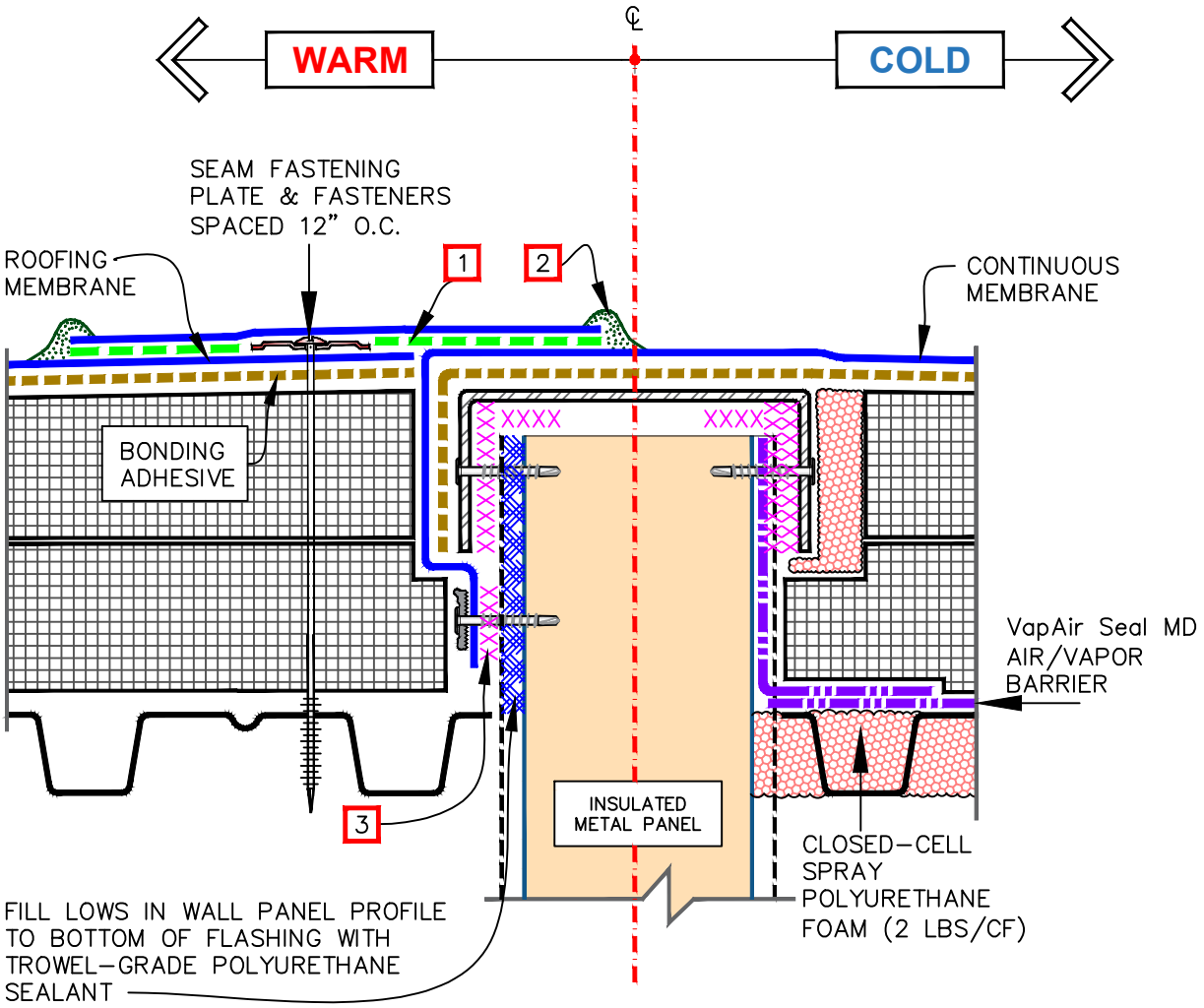
VERSICO ROOFING SYSTEMS

PARAPET BASE FLASHING FASTENED INTO DECK OR CONCRETE WALL – ALL MEMBRANES

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-12.2



NOTES:

1. 3" OR 6" QA SEAM TAPE IN CONJUNCTION WITH EPDM PRIMER FOR EPDM OR 1 1/2" MIN. HOT AIR WELD FOR TPO, PVC, OR KEE HP.

2. 1/8" CUT-EDGE SEALANT FOR TPO ONLY

3. APPLY HEAVY BEAD OF WATER CUT-OFF MASTIC UNDER MEMBRANE EDGE; FASTEN VERSITRIM ANCHOR BAR WITH #8 X 3/4" TRTS HEAD TEK SCREWS SPACED 6" O.C. – 4" BELOW TOP OF PANEL PROFILE LOWS WITH WATER CUT-OFF MASTIC INCLUDING VOIDS UNDER GALV. CHANNEL

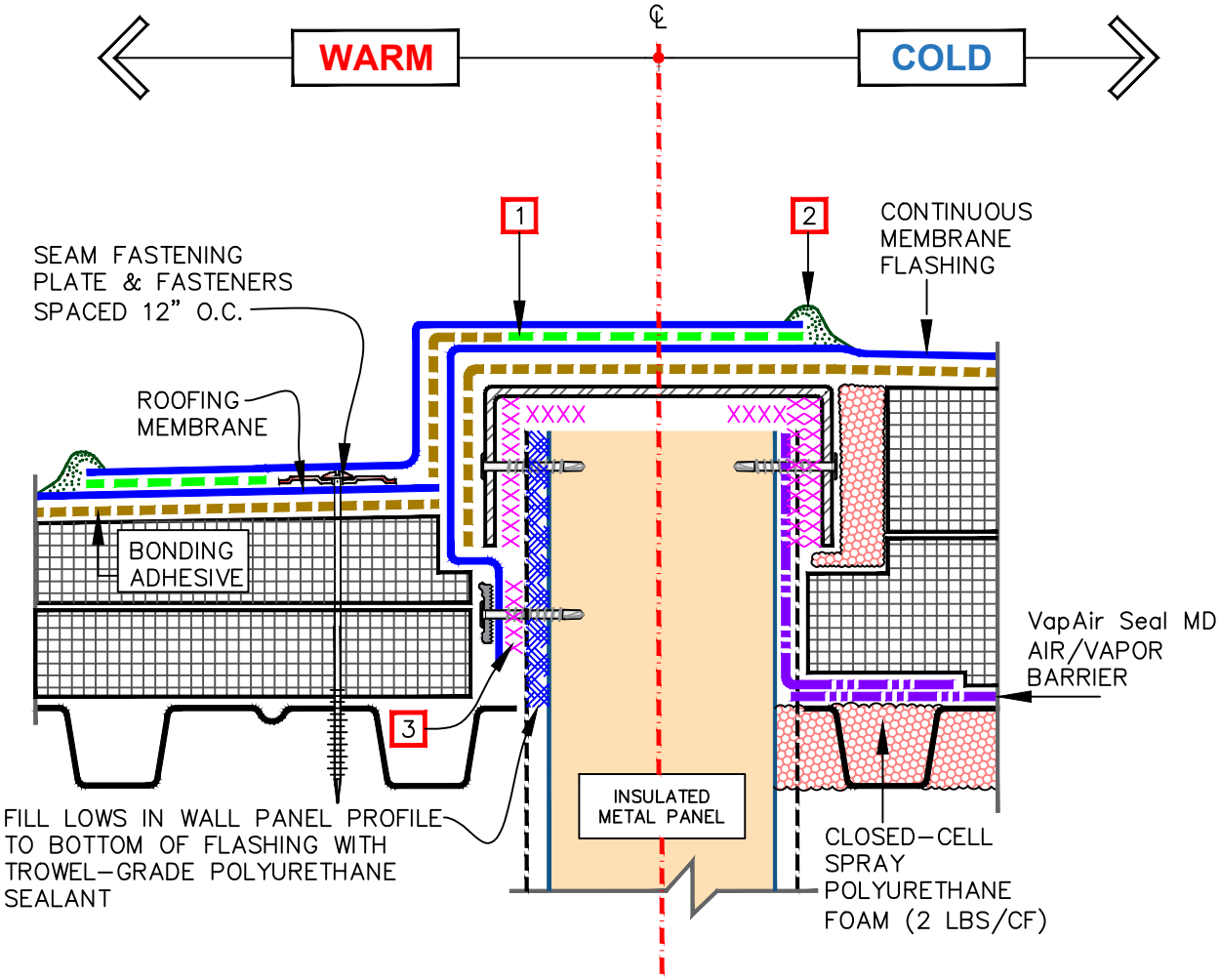
VERSICO ROOFING SYSTEMS

ROOF TIE-IN FROM COLD TO WARM – WALL ABOVE DECK

MAXIMUM WARRANTY: 20 YEARS

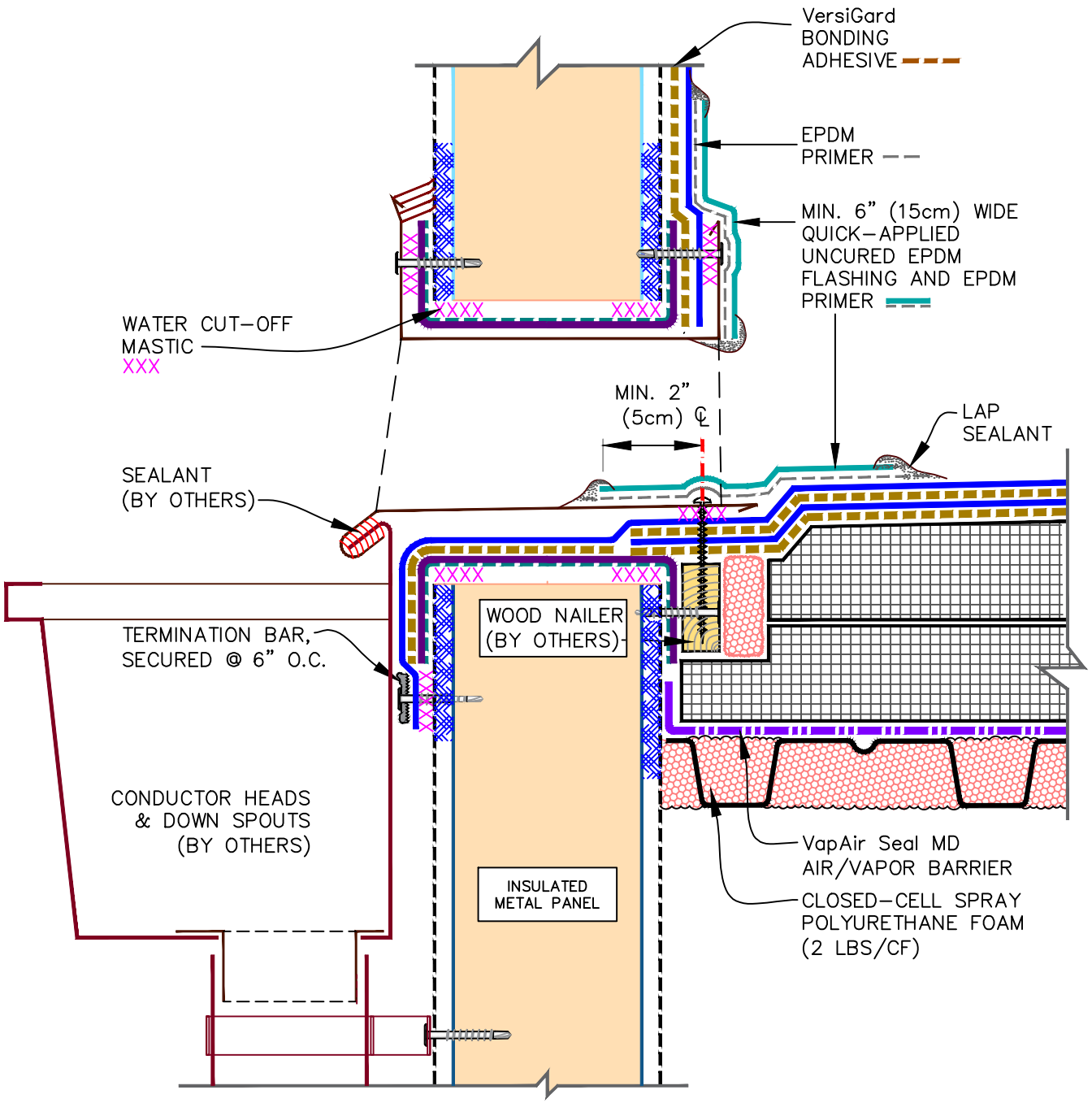
ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-13.1



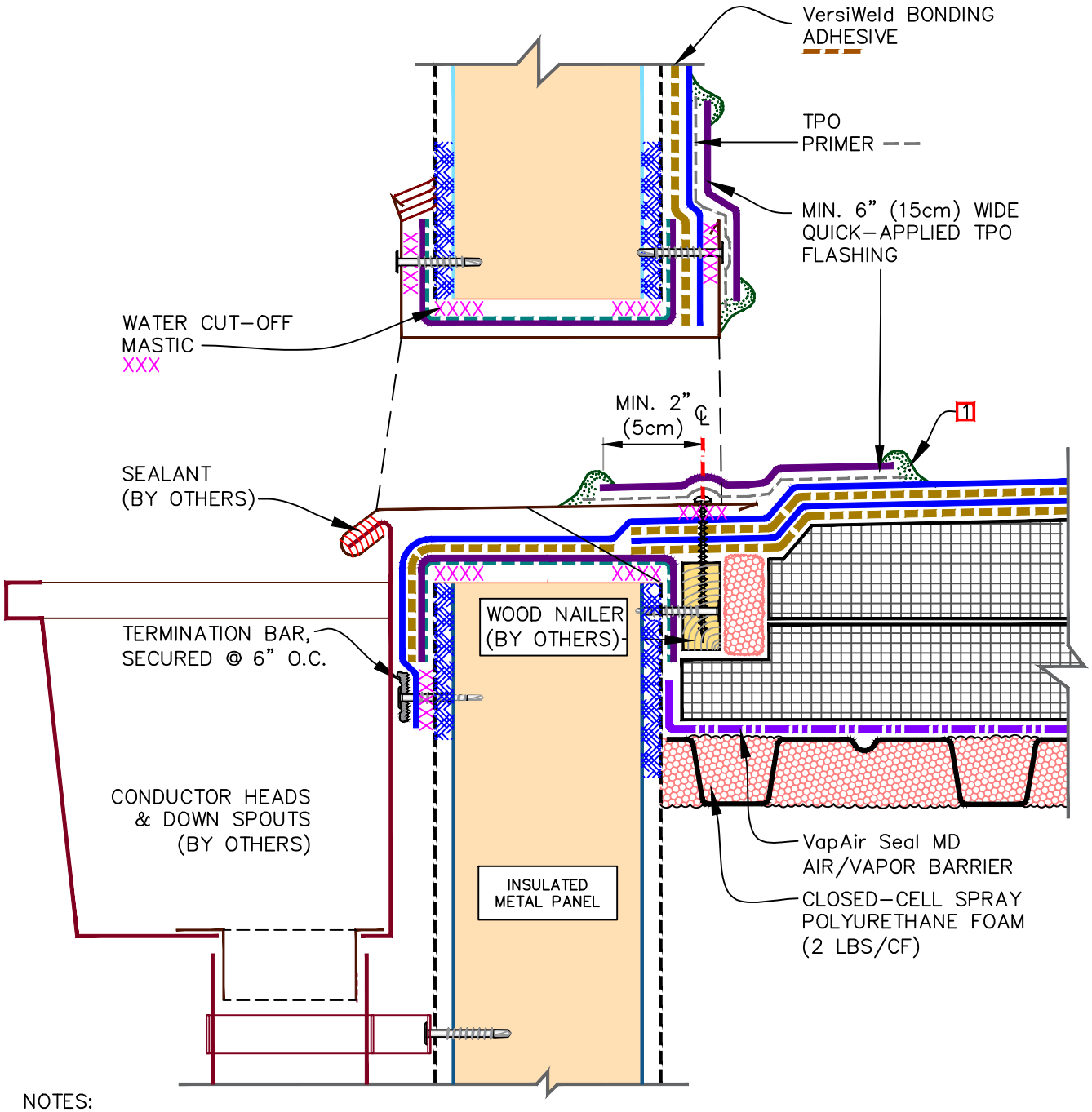
NOTES:

1. 3" OR 6" QA SEAM TAPE IN CONJUNCTION WITH EPDM PRIMER FOR EPDM OR 1 1/2" MIN. HOT AIR WELD FOR TPO, PVC, OR KEE HP.
2. 1/8" CUT-EDGE SEALANT FOR TPO ONLY
3. APPLY HEAVY BEAD OF WATER CUT-OFF MASTIC UNDER MEMBRANE EDGE; FASTEN VERSITRIM ANCHOR BAR WITH #8 X 3/4" TRTS HEAD TEK SCREWS SPACED 6" O.C. – 4" BELOW TOP OF PANEL PROFILE LOWS WITH WATER CUT-OFF MASTIC INCLUDING VOIDS UNDER GALV. CHANNEL



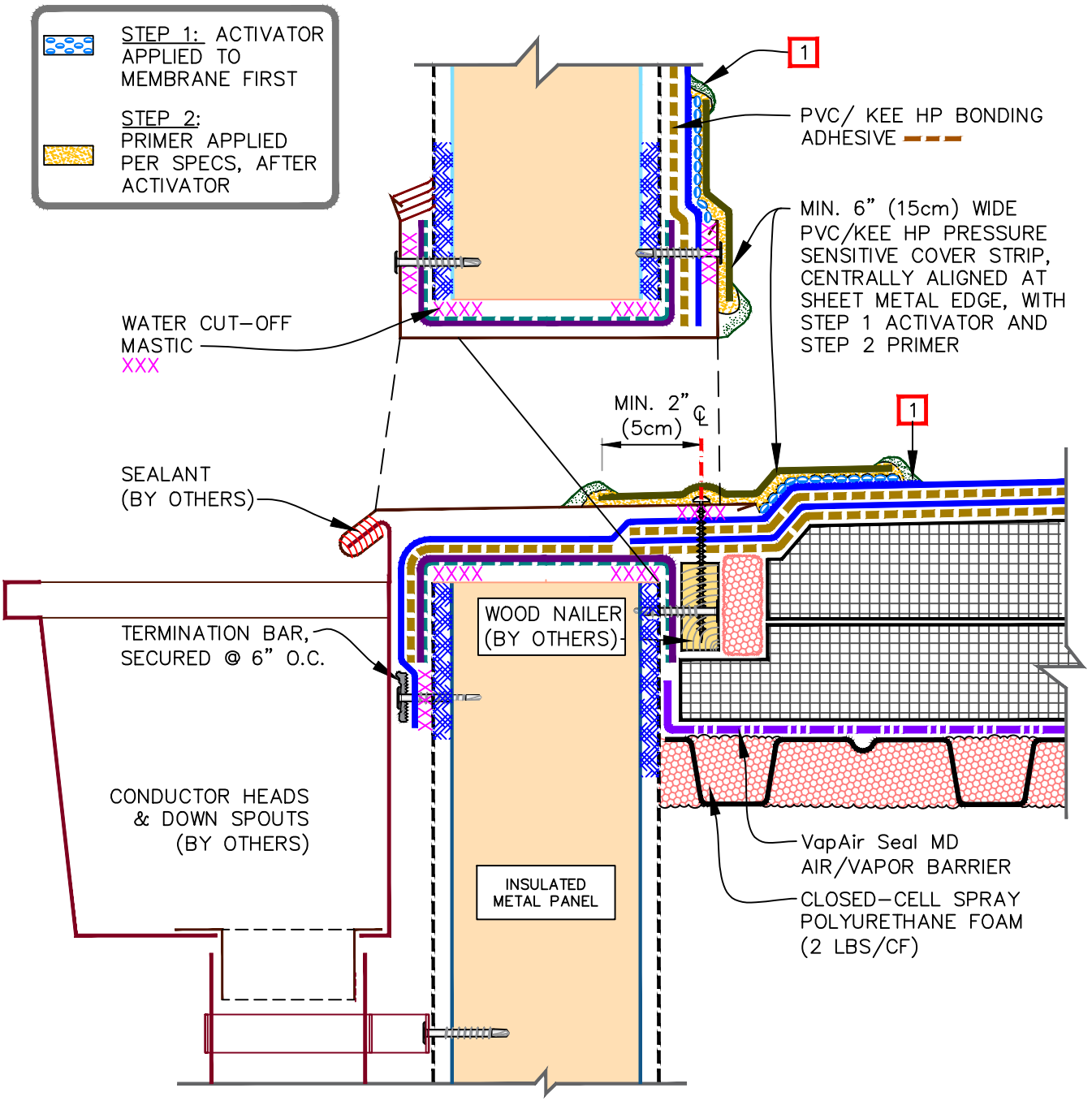
NOTES:

1. METAL SCUPPER BOX MUST HAVE CONTINUOUS FLANGES WITH ROUNDED CORNERS. SOLDER ALL SCUPPER SEAMS WATER-TIGHT.
2. WATER CUT-OFF MASTIC UNDER SCUPPER FLANGES MUST BE UNDER CONSTANT COMPRESSION.
3. CLEAN METAL FLANGE WITH WEATHERED MEMBRANE CLEANER; AND ALLOW TO DRY.



NOTES:

1. 1/8" CUT-EDGE SEALANT FOR TPO ONLY
2. METAL SCUPPER BOX MUST HAVE CONTINUOUS FLANGES WITH ROUNDED CORNERS. SOLDER ALL SCUPPER SEAMS WATER-TIGHT.
3. WATER CUT-OFF MASTIC UNDER SCUPPER FLANGES MUST BE UNDER CONSTANT COMPRESSION.
4. CLEAN METAL FLANGE WITH WEATHERED MEMBRANE CLEANER; AND ALLOW TO DRY.



NOTES:

1. VERSICO UNIVERSAL SINGLE-PLY SEALANT.
2. METAL SCUPPER BOX MUST HAVE CONTINUOUS FLANGES WITH ROUNDED CORNERS. SOLDER ALL SCUPPER SEAMS WATER-TIGHT.
3. WATER CUT-OFF MASTIC UNDER SCUPPER FLANGES MUST BE UNDER CONSTANT COMPRESSION.
4. CLEAN METAL FLANGE WITH WEATHERED MEMBRANE CLEANER; AND ALLOW TO DRY.

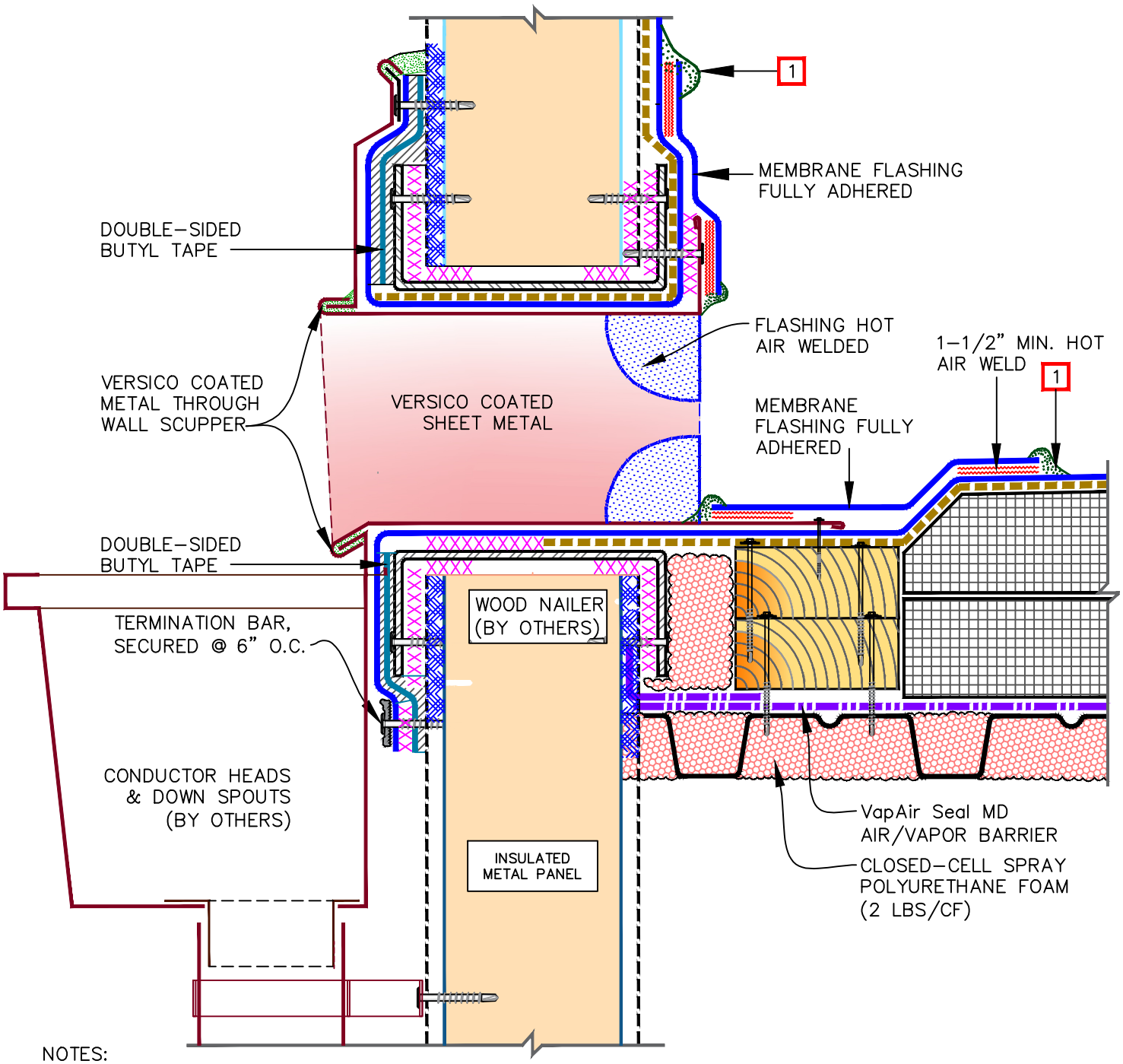
VERSICO ROOFING SYSTEMS

THROUGH WALL SCUPPER – PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-18.3



NOTES:

1. 1/8" CUT-EDGE SEALANT FOR TPO ONLY
2. METAL SCUPPER BOX MUST HAVE CONTINUOUS FLANGES WITH ROUNDED CORNERS. SOLDER ALL SCUPPER SEAMS WATER-TIGHT.
3. WATER CUT-OFF MASTIC UNDER SCUPPER FLANGES MUST BE UNDER CONSTANT COMPRESSION.
4. CLEAN METAL FLANGE WITH WEATHERED MEMBRANE CLEANER; AND ALLOW TO DRY.

COATED METAL: THE TOP SIDE OF SHEET METAL IS LAMINATED WITH PRE-APPLIED TPO, PVC AND OR KEE-HP, TO CONVENE THE WELDING OF MEMBRANE.

VERSICO ROOFING SYSTEMS

THROUGH WALL SCUPPER WITH COATED METAL- TPO/PVC/KEE HP

MAXIMUM WARRANTY: 20 YEARS

ROOF MEMBRANE
APPROVED SUBSTRATE
0 SEE NOTE(S)

CS-18.4